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If you are into the world of coding and development, the three big languages are C, C++, and Java. Mastering these languages will increase your credibility as a developer. The easiest way to master Java is by building projects. To help you find these projects, we have curated a list of 10 exciting Java project ideas at all levels. Whether youre a beginner or someone who knows the basics, working on a Java project like this is a great way to enhance your problem-solving abilities and understand real-world application development. So, without further ado, let us get started! 10 Java Project Ideas for All LevelsAI-powered chatbot for Customer SupportFitness Tracker with GamificationAI-Powered Resume AnalyzerSmart Traffic Management SystemPersonalized News AggregatorWeather Forecasting ApplicationVoice-Controlled Smart Home SystemCybersecurity Risk AnalyzerSmart Healthcare Monitoring SystemSocial Media Sentiment AnalyzerConclusionFAQsWhat are the easy Java project ideas for beginners?Why are Java projects important for beginners?What skills can beginners learn from Java projects?Which Java project is recommended for someone with no prior programming experience?How long does it typically take to complete a beginner-level Java project? When it comes to learning Java, the best way is to build projects that challenge your understanding. These project ideas will cover a range of difficulty levels, allowing you to progress from basic to more advanced concepts. This project involves developing an AI-based chatbot that handles customer service queries by using natural language processing (NLP) to understand user inputs and provide relevant responses. The chatbot can be integrated into websites or messaging platforms. Time Taken: 6-8 weeks Project Complexity: Advanced Technology Stack: Java, Spring Boot, Stanford NLP Library, MySQL Learning Outcome: Learn how to use NLP for understanding user queries, handling dynamic responses, and building chat-based applications. Integration with APIs: OpenAI API or other NLP-based APIs for enhanced learning. Deployment Options: Cloud-based (AWS, Heroku) or as a standalone web service. Security Measures: Implement secure user authentication and ensure sensitive data is encrypted. Source Code: AI Chatbot This project aims to develop a fitness tracker that monitors user activity, such as steps, calories burned, and distance traveled. The tracker incorporates gamification by awarding points, badges, and fitness challenges to keep users motivated. Time Taken: 5-6 weeks Project Complexity: Intermediate Technology Stack: Java, Spring Boot, MySQL, JSON for data exchange, and JavaFX for UI. Learning Outcome: Gain experience in implementing gamification elements, real-time data monitoring, and user engagement techniques. Integration with APIs: Use Google Fit API or HealthKit API for tracking user health data. Deployment Options: Mobile or web-based, cloud storage for user data (AWS, Firebase). Security Measures: Encrypt sensitive health data and use secure authentication mechanisms. Source Code: Fitness Tracker This project involves building a resume analyzer that suggests improvements by comparing the users resume to job descriptions. It uses Natural Language Processing (NLP) to highlight skill gaps, format issues, and other improvements. Time Taken: 6-7 weeks Project Complexity: Intermediate Technology Stack: Java, Spring Boot, Stanford NLP Library, MySQL Learning Outcome: Learn how to work with text parsing, resume optimization, and recommendation algorithms. Integration with APIs: LinkedIn or Indeed APIs for fetching job descriptions and matching resumes to job requirements. Deployment Options: Web-based platform or desktop application. Security Measures: Ensure user data privacy through encryption and anonymization techniques. Source Code: Resume Analyzer The Smart Traffic Management System uses real-time data collected from IoT sensors to adjust traffic lights and optimize traffic flow. It helps reduce congestion and manage road traffic intelligently by leveraging machine learning algorithms. Time Taken: 8-10 weeks Project Complexity: Advanced Technology Stack: Java, Spring Boot, TensorFlow (for machine learning), MQTT (for IoT communication), MySQL Learning Outcome: Youll gain experience in IoT integration, real-time data processing, and predictive analytics. Integration with APIs: Google Maps API for real-time traffic data. Deployment Options: Cloud-based or deployed to local municipal systems. Security Measures: Secure communication between IoT devices using SSL, encrypt all sensitive data, and ensure the privacy of user data. Source Code: Smart Traffic System This project involves creating a personalized news aggregator that pulls news articles from various sources based on user preferences. Machine learning algorithms are used to recommend articles that match the users reading habits. Time Taken: 4-5 weeks Project Complexity: Intermediate Technology Stack: Java, Spring Boot, MongoDB, RSS Feeds, Apache Lucene for search functionality Learning Outcome: Learn how to work with recommendation systems, handle large datasets, and personalize content. Integration with APIs: NewsAPI or RSS feeds for retrieving news articles. Deployment Options: Cloud-based or desktop applications with user-friendly interfaces. Security Measures: Secure API access and protect user data through authentication. Source Code: News Aggregator This project involves developing a weather forecasting application that fetches weather data from external APIs based on users location. The application provides real-time forecasts, including temperature, humidity, and weather conditions. Time Taken: 2-3 weeks Project Complexity: Beginner Technology Stack: Java, Spring Boot, OpenWeatherMap API, MySQL for data storage, and JavaFX for the UI. Learning Outcome: Youll gain practical experience in API integration, working with JSON data, and presenting data through a user-friendly interface. Integration with APIs: OpenWeatherMap API for fetching real-time weather data. Deployment Options: Web-based or desktop application. Security Measures: Basic user authentication and securing API requests. Source Code: Weather Forecasting Build a smart home system that allows users to control their home devices (lights, fans, etc.) using voice commands. This project will involve creating a voice recognition system and interfacing it with IoT devices. Time Taken: 6-7 weeks Project Complexity: Advanced Technology Stack: Java, Spring Boot, Google Assistant API, MQTT protocol for IoT Learning Outcome: Youll learn about voice recognition, IoT integration, and handling real-time commands. Integration with APIs: Use the Google Assistant API for voice commands. Deployment Options: Local network or cloud-based control panel. Security Measures: Secure communication between devices and encryption of user data. Source Code: Voice-Controlled Smart Home System Build a cybersecurity tool that scans for vulnerabilities in a given network or application. This system should generate risk reports based on the severity of the threats found, providing recommendations for mitigating these risks. Time Taken: 5-6 weeks Project Complexity: Intermediate Technology Stack: Java, Spring Boot, OWASP tools, PostgreSQL Learning Outcome: Gain insights into security best practices, vulnerability scanning, and risk assessment. Integration with APIs: Integrate with security APIs like VirusTotal or OWASP ZAP for threat detection. Deployment Options: Cloud-based or local deployment for scanning systems within a network. Security Measures: Implement secure access and encryption for sensitive data being scanned. Source Code: Cybersecurity Risk Analyzer This project focuses on building a healthcare monitoring system that tracks patient health data (like heart rate, temperature, etc.) in real-time. The data will be collected using IoT devices and displayed on a dashboard for doctors to monitor remotely. Time Taken: 8 weeks Project Complexity: Advanced Technology Stack: Java, Spring Boot, IoT (MQTT), MongoDB Learning Outcome: Learn how to handle real-time data, manage IoT devices, and create a monitoring dashboard. Integration with APIs: Use health-related APIs or IoT device SDKs for data collection. Deployment Options: Cloud-based for remote monitoring. Security Measures: Data encryption, secure user authentication, and HIPAA compliance. Source Code: Smart Healthcare Monitoring System Create a Java application that analyzes social media posts and determines the sentiment (positive, neutral, or negative) of the content. This project will help businesses gauge customer sentiment toward their brand or product. Time Taken: 6 weeks Project Complexity: Intermediate Technology Stack: Java, Spring Boot, NLP libraries, MongoDB Learning Outcome: Youll learn how to process large-scale social media data and implement sentiment analysis algorithms. Integration with APIs: Twitter API or Facebook Graph API for real-time data collection. Deployment Options: Cloud-based or web-based. Security Measures: Implement secure API access for data collection and protect user data. Source Code: Social Media Sentiment Analyzer These Java project ideas offer unique learning experiences, covering a range of industries and technologies. Each project provides an opportunity to work with Java, APIs, and additional frameworks, equipping you with real-world skills. In case you want to learn more about Java development, consider enrolling in GUVIs Full Stack Development course, which teaches you everything from scratch and equips you with all the necessary knowledge! In conclusion, working on these unique Java projects will take your development skills to the next level, preparing you for real-world applications in industries like cybersecurity, healthcare, and AI. Whether youre working on AI-powered tools or IoT integrations, these projects will deepen your understanding of Java and help you become a more well-rounded developer. So, pick a project that excites you and start building today! Beginners can start with projects like a Weather Forecasting Application. These projects are simple yet teach fundamental Java concepts like file handling, loops, and basic API integration. Java projects help beginners apply theoretical knowledge, improve problem-solving skills, and gain hands-on experience with coding, which is essential for deeper learning and building confidence. Beginners can learn essential programming concepts like object-oriented programming (OOP), database connectivity (JDBC), API integration, and user interface design using JavaFX or Swing. For complete beginners, a Simple Weather Forecasting Application is ideal as these projects introduce basic Java programming and API integration in an easy-to-understand manner. A beginner-level Java project usually takes about 2-3 weeks to complete, depending on its complexity and the learners pace.

Building Java projects is an excellent way to enhance your skills and gain practical experience. Projects allow you to apply theoretical knowledge, boost your confidence, and build a strong portfolio to impress recruiters. Whether youre a college student or an aspiring developer, working on projects can set you apart in interviews.In this article, well explore a range of Java project ideas, from beginner to advanced levels, perfect for college assignments or skill-building. Lets dive in and start creating!Beginner Level Java Project Ideas The below-given list consists of some beginner-level Java project ideas that can be used as major projects by the students or professionals. 1. Currency Converter This project is a very basic project in Java that is used to convert a currency from one to another. A web-based interface for converting currency and getting the output value, for example, here display converting the currency of the US dollar to INR. Abstract: We see variations with different countries using different currencies. Be aware of the current exchange prices in the market and then can convert from one currency to another. A calculator-like application, developed using Ajax, Applet, and web features of Java servlets. You also get a regular update when theres a change in the value of the countrys currency and also the conversion rate. People use this application basically for business, finance, and finance-related areas where currency exchange and money transfer happen daily. You get a preferred choice to convert any countrys currency. Just enter the amount, the currency to which you want to transform to, click enter and you get the output. Technologies Required: Java programming language, Java Servlets Web Features, Applet, and Ajax. 2. Brick Breaker Game One of the pleasant ways to study technology is through implementing game applications. It may not be easy but developing this Java project will make you learn a lot of new things. This game development project will develop you with experience and animation techniques with their integration. Abstract: Many of you already heard of the brick breaker game. It has a small ball that knocks the bricks taking the help of a small platform at the base. The player handles this platform and tries to bounce the ball through that platform. In this project, the scoring depends on the number of bricked numbers, i.e., the more you destroy the bricks, the more you score. If you missed the chance for the ball to bounce, then the game is over. This project is basically for beginners who are looking for a minor project. This simple project will surely help you with your first-year project or also as an implementation for fun purposes. Technologies Required: Java, Game development, JFrame, JPanel, and Java Graphics Kit. 3. Attendance Management System An attendance management system is one of the major projects for university-level graduates. The project can be built using Java, the MVC architecture could be followed, and Maven as a built tool. It uses MySQL as a backend for database management and uses a tomcat server to deploy the application in order to see it working live. Abstract: This project is a web application that manages the attendance of any student in school or college, also employees in an organization. It has an admin that can update, delete, and add user records to the list. Various users of the application where users can access are: Technologies Required: Java Servlet , MVC architecture, Maven , Tomcat Server JSP, HTML , CSS , and JavaScript. 4. Number Guessing Game This number guessing game is an easy project built on Java where the player has to guess a number given in between a range. If the guessed number is right, the player wins else loses. It also has the concept of limited attempts where the player has to guess the number within the limited attempts given. Abstract: The UI has an input value option where the player has to enter the guessed value, it also displays the time remaining to guess. After completing the limits given, if the guessed number is right, the player wins else loses. The range between the number can be from 1 to 100 or 1 to 1000. Also, if the number youve guessed is high or low to the actual value, the application sends you an alert Too High or Too Low. After the limited attempt is completed, the actual value is revealed. Technologies Required: Java Programming Language and Random Class in Java . 5. Tic-Tac-Toe Game The Tic-Tac-Toe game application is a simple project developed using GUI (Graphical User Interface) in Java. It is very easy to understand and play, players generally prefer this kind of game when theyre bored and want something to play which is quick and easy. Abstract: The game starts with two players as active members, having a one-print board on the screen which displays 9 boxes (i.e., 3x3). The first person who starts the game has to enter either X or O for any one box, followed by the other player entering the other X or O (opposite to what the first player has entered). This continues unless any one of them gets a line cut either diagonally or straight. And the person who founds the line is the winner of the game. Technologies Required: Java, Java Swing, Java GUI (Graphical User Interface), and JFrame. 6. Simple Banking Application Simple Banking Application is a simple Java project for beginners to start their career in coding. Youll learn about Scanner class to take inputs, and the basics of strings, loops, methods, and conditional statements. Here, simple banking operations like deposit, withdrawal, checking balance, exit, etc. Abstract: In this modernized world, where time is money, everyone has got the habit of doing their tasks online. Within a click, a task is done. So, here this application to make transactions just by sitting in your comfort zone. Every operation like money transfer and balance inquiry can be done in seconds. Technologies Required: Java Programming Language, Oracle Database (if needed), and Java methods. 7. Library Management System Learning Management System, here you can build on Java is a great way to update the record, monitor and add books, search for the required ones, taking care of the issue date and return date. It comes with basic features like creating a new record and updating and deleting it. Abstract: We rely on web-based applications for every task, be it small or big. This contains two sections - the admin and users section. The admin handles the record of the users and the user handles the entry of books being issued to him/her. Also, there can be modules that display the data of books available in the library, a search button to search for the required book, and the final payment method for the charges of the book or fine imposed. Technologies Required: Java, Java Swing Library, MySQL JDBC Connector, MySQL Community Server, and rs2xml.jar (used to display the data in a table format). 8. Word Counter A simple project for beginners is good to start. It can be built using Swing in Java. Here, the application tells you the no of words, the entered paragraph has. Abstract: This Java application is best suited for university work. Remember, our childhood days when we were asked to write an essay on a given topic where the word length should be 500 or 1000. This application comes with a feature that could help you. Along with word count, it also tells you the number of characters, words, and paragraphs it has. Also, it is completely free to use and theres no word count limit. Technologies Required: Java, Java Swing, Java Framework (JFrame), and Applet. 9. ATM Simulation System ATM simulation system is a simple Java project for beginners. It is a kind of personal banking system where users can perform various transactions like withdrawals, deposits, and checking the balance of the account in just one click. It has a Graphical User Interface (GUI) to make the process user-friendly. Abstract: The introduction of the application came up with two features which have an admin mode and the user mode. The admin mode is responsible for controlling the entire system like adding and deleting accounts and updating the records of the user. The user-mode takes care of the deposit, withdrawal, and checking of the account balance. The whole process of this system is automated, from PIN (Personal Identification Number) validation to the transaction. The card details will be secured enough by encrypting the details in the database and will only be accessible to the authorized user. The UI of the application contains a profile of the user, accounts added to it, and an option to withdraw, deposit and update. Abstract: This web-based project is usually built for beginners. 10. Airline Reservation System This Java project is built to help the customers book tickets online, check the availability of seats, and the details of the flight arrival, select the class they want to choose, and departure reserve seats for national or international flights. Abstract: This web-based Java project helps you in searching from pick-up location to destination, and filters out the flight details with timing, and available seats. It consolidates data from all airlines using globally distributed systems. After entering all the required details of the customer, it asks you to choose a flight with a preferred time slot, complete the payment, and book the ticket. It provides rates in real-time to customers as well as to travel agents. It also has two sections where you get to book a national and an international flight wherein you can book a domestic or international flight as per your need. Technologies Required: Core Java, HTML, JavaScript, and SQL Database. 11. Smart City Project (City Guide Project) Smart City is a web-based application built using Java. It stores details of a city and displays information about the city such as hotels, shopping marts, restaurants, tourist places, transportation modes, and also some general info. This acts as a guide to the user because there can be another in order to explore or for employment purposes but before they explore, they want to get an insight data about the place. So, to help them with this, a simple city project can be the best guide for them. It is a web-based application written in Java which basically guides you about the place youre going to visit. You can access all the details of the city. In this application, users can switch to the module as per the requirement. Technologies Required: Java, JDBC ODBC 2.0 drivers, Oracle Database, J2EE, AJAX and XML. 12. A Text-Based Adventure Game A Text-based Adventure game, built using Java and Data Structures is an interesting game where the player follows the commands given to him. This web-based gaming app is often referred to as interactive fiction. Abstract: This game has a central character called the Adventurer which is like an object who represents the player. With the help of the object, tracking of the actual player can be made easy, also can find where the player is. The role of the adventurer is to type the commands which have to be followed can be Go, Look, Take, Drop, Use, and Fight. It contains the following classes TextAdventure, AdventureNode, Adventurer, and a number of rooms. Technologies Required: Java, Java programming language, Java objects and classes, and Array and Hashmaps. 13. Grading System in Java This project built using Java is an important one to grade students based on their markings. It is the best project to start for beginners and has a GUI (Graphical User Interface) design. Abstract: The main aim to build this project is to help schools and universities to manage the student details (like name, class, total subjects, marks achieved, etc) and rank them on the basis of marks. It manages the calculation of the average marks achieved and ranks the student on the basis of marks. It stores the data of students in a MySQL database. The project is built on Java and has a fully GUI (Graphical User Interface). It has all the features like managing the records of students, integrating all records of examinations, displaying all the information, and keeping a track of it. Technologies Required: Java, Java Swing, MySQL Database, and JPanel. 14. School Management System The School Management System is a Java application that stores records of schools be it related to students, teachers, and staff. Abstract: This applications objective is to help the school management system in managing the data easily. The manual system could be a complicated one when it comes to keeping the records so, there comes the role of this project. It holds personal records of students, teachers, and staff. This system contains modules for different roles be it admin, student, staff, and teacher. Here, the admin has to be responsible for maintaining the records in the database like adding users, updating the details of the user, and deleting the users profile. Technologies Required: Java, MS Access database, Java Swing, Java Graphical User Interface (GUI), and JFrame. 15. Pharmacy Management System Pharmacy Management System is a web-based application built using Java that offers you the facility to order medicines, consult doctors and keep track of all your orders online by just signing up with a registered mail id. Abstract: This application is of great help to the users who regularly goes for body check-up because this application gives you the comfort of consulting with a doctor at your comfort place. It comes with an excellent and friendly user interface comes with an automated billing system. It has an integrated chat feature where you can consult with a doctor regarding your health and it also tells you details of medicines and you can also track the status of your ordered items. Technologies Required: Java, Java Swing, AWT, JSP, MySQL Database. 16. Supermarket Billing System This web-based application is a Java project that is usually built for keeping the sales recording made on a daily basis. It uses a MySQL database for recording the data of the users, products, and orders made by the user (customer). Abstract: The web-based Java application is implemented to keep a record of the products, status of the products orders, and users history. This UI is made in terms that it displays records of bills made on that particular day, items added to the new bill also have an automated system that calculates the bill with GST and other applied taxes and has a print button to print the copy statement of the bill. It has an admin module that is responsible for adding, updating, or deleting records of the bill. It maintains a database to store the item list, categories, and buyers list. Technologies Required: Java, JDBC, MySQL Database, Java JavaScript, servlet, HTML and Ajax. 17. Online Quiz Management System You must have definitely used this application during your school days when you were asked to attend an MCQ-based test. The Online Quiz Management System can be built using Java which contains different sections for questions, marks, and subjects. Abstract: This Java-based project is online software that is a kind of an online platform for conducting mock tests and competitions. The UI is built in such a way that it displays the login button when you have to sign in to begin the test, followed by entering the details of the test (which could be a unique key), then it displays the no of questions, time duration, and a START button to start the test. After completing the test, it asks you to review the answers and then submit it using the SUBMIT button. The admin module gives you access to the users profile. Technologies Required: Java, J2EE, MySQL Database, and JDBC. 18. HelpDesk Management System HelpDesk Management System built using Java, Servlet, and MySQL is a project made with the intention to help individuals raise a complaint regarding a ticket issued to them. It uses the MVC architecture design and Servlet can manage the request and response made. Abstract: You face an issue, you raise a complaint, and a ticket ID is generated which can be used as a reference to resolve the issue. This application is used in society, schools, organizations, and even in public places where people facing any kind of issues can register a complaint using the application. As soon you raise a complaint, a notification goes to the admin who verifies it and then reverts back to you after rectifying the issue. It includes features like Track, Issue, Ticket ID, Help Desk, Network, and Issues. It contains an admin and user module. Technologies Required: Java, J2EE, HTML, JavaScript, Tomcat Server, JDBC, and Servlet. 19. Notes and Password Manager This application is similar to a To-Do List app which helps you to complete your daily tasks and keep track of your important passwords. Abstract: This applications is of great help when individuals have a lot of tasks to perform where some of them have to be done on priority. This application keeps a track of your daily tasks and helps you in completing them. This can be used by individuals and even by organizations to manage daily tasks. This saves their time in keeping their daily tasks and stores their data in a centralized database for each user. The steps to follow are setting up the details, authenticating it with an authorized user, and managing notes and passwords. It comes with basic functionalities such as a login page, home page, note page, and updating details on the note page. Technologies Required: Java, Android, XML, and Firebase. 20. Supply Chain Management System Supply Chain Management System is a Java project for beginners where different operations such as inventory, storing, handling, and moving raw and finished goods to the final destination are completed. Abstract: This is generally used by the production sector where sellers add and update the details of the goods and the buyers can contact them regarding the booking of orders. Buyers can also check the availability of the goods and keep track of the status. It uses MS Access as a backend, Apache Tomcat as a server, and HTML and CSS to design its front-end with java. The main objective of this application is to avoid the communication gap between dealers and clients. Theres also a feedback feature for the goods received. Technologies Required: Java, JDBC, JSP, HTML, and MS-Access Database Intermediate Level Java Projects Ideas The below-given list consists of some intermediate-level Java project ideas which can be used as major projects by the students or professionals. 21. Private Virtual Network (VPN) for Office Virtual Private Network (VPN) developed using Java can be your minor or major project. It works the same as WAN (Wide Area Network), and provides a private network across the public, for example, the Internet. A point-to-point virtual connection through traffic encryption, virtual tunneling protocols, or dedicated connections. Abstract: This application built using Java provides a secure and private connection to the organizations. It can be used on office premises, as private networks and it can also be the best means to share information. This project also has three modules which are admin and marketing where the admins role is to handle the data stored of the members and the training module checks for the testing and networking part, and the marketing. Technologies Required: Java, Swing, JSP, HTML, and JavaScript. 22. Flappy Bird Game Flappy bird game is a very simple Java-based gaming app in which the main character (which is the bird) has to reach the final destination after crossing all the hurdles. The use of the swing component in Java is perfect in this case. Abstract: In this gaming application, the player has to control the movement of the bird. The bird ascends where theres a tap by the player and descends the rest of the time. The count increase by 1 when the fabby bird passes one hurdle, also the time duration is counted. There shouldnt be a collision with any hurdle, or else the game ends. Technologies Required: Java, Java Swing, Java AWT, and OOPS. 23. Scientific Calculator in Java A Scientific calculator built using Java is a general-purpose application whose primary objective is to perform basic mathematical operations and also perform some essential and tricky solutions to trigonometric functions, logarithms, etc. Abstract: Here, Java Swing can be used to implement this project. It performs mathematical operations like addition, subtraction, multiplication, division, trigonometric operations, finding log values, etc. You get buttons to enter the input value and give the output within a second. In the programs code, the use of switch cases can be seen to perform operations as per the case. The Scanner class can be used to take input from java util package. Technologies Required: Java, Java Swing, Java AWT, and OOPS. 24. Simple Search Engine You search for anything using a search engine so building a simple search engine can be one of the best projects. Applying a ranking algorithm can give better results. Abstract: Simple Search Engine is a Java application developed using Servlets, SQL Server, and Oracle database to handle input and answers entered into the maximum votes, then it displays the top 30 websites related to the keyword searched. The database containing resource description is described in SOIF (Summary Object Interchange Format) format. The interaction with the search operations is dependent on the Java interface provided by classes in Java SDK. Your search engine contains a history of the pages you searched for, pages visited in the past few days, accounts linked with it, etc. Technologies Required: Java, Java Servlet, Oracle or SQL Database, JDBC, Apache Tomcat, and JSP. 25. Online Voting System An online Voting System built using JSP and Servlet can be the best project for college students. This project is designed to automate the voting process where multiple parties are added and then with the maximum votes, a leader is chosen. Abstract: The main objective to build this web-based application is to reduce the time at the voting booth. The UI has different sections which display a login page to enter the portal, different parties with their symbol, an option to choose among them, and then to submit the entry. It uses HTML, CSS, and bootstrap in the front-end, MySQL is the database server, and also it uses an MVC design pattern. The user has to vote for the preferred party anonymously, but the voters information and total votes will be stored in the database. Technologies Required: HTML, CSS, MySQL, and Tomcat Apache Server. 26. Online Book Store Online Book Store is an application that displays lists of books available in the store where you can purchase or even return them. You can check for the value of the book and buy it by sitting in your comfort place. Abstract: The application created using Java allows users to purchase a book by checking for the availability of the book. The user has to sign up, check for the book, enter the credit card details, complete the payment and order the book. There are two modules in this application - the admin and the user. The admin is responsible for entering the details and the user section. Also, you can see the categories of the book such as Software, History, English, Science, etc. All the CRUD operations are performed by the admin. Technologies Required: Java, HTML, CSS, JavaScript, Java Servlet, MySQL, and Tomcat server. 27. CGPA Calculator in Java This CGPA Calculator built using Java is a web-based application that is of great help to university students. It can be built as a major project during your college days. Abstract: This project can be built on eclipse using Maven and uses MVC architecture. It uses MySQL to store the data. This application creates a mark sheet for students and then calculates the CGPA. Here, also the admin is held responsible for entering the details, managing the user details, etc. In the UI, you can view a search bar to enter the enrollment number and you get the details displayed in seconds. All the marks for the subjects are given semester-wise. When marks of all the subjects are entered, calculated CGPA will be auto-generated. Technologies Required: Java, HTML, CSS, JavaScript, JSP, Java Servlet, MVC, Maven, MySQL, and Tomcat server. 28. Snake Game in Java Remember, those days when you used to play the snake game on Nokia mobile phones. This snake game can be implemented fully using Java and uses a database using MySQL. It has all the functionalities with a full-featured Graphical User Interface (GUI). Abstract: The application was built long years back and gained a lot of popularity within a few months. The game starts with a snake whose size increases with the no of apples eaten by it and the life of the snake ends when it gets collided with a wall or hurdle which comes in the way. So, basically, the more apple snake eats, the more score you get. The navigation is like a snake can turn left or right by ninety degrees. A constructor can be used to start the movement of a snake and a function to perform various other operations. Technologies Required: Java, Java AWT, J-Frame, and Java Swing. 29. Job Portal in Java One thing which comes to your mind when you complete your graduation is getting a job. So, building a job portal for individuals where after entering the qualifications, the user gets the opportunity to enroll himself/herself for the job preferred. Abstract: The main objective of the online job portal project in java is to make the right job available for the right candidate. The admin, the recruiter, and the user are the three most vital parts of this application. Here, as soon as you enter the details or qualifications pursued by you, the recruiter verifies it and takes the further procedure ahead. The process includes verifying the details, contacting the concerned person, having all the interviews done, and receiving an offer letter. The application (which can be MongoDB) stores the details of the user. The user performs CRUD operations and deletes the profile as soon as the user gets a job. Technologies Required: Java, HTML, CSS, JavaScript, JSP, Java Servlet, MySQL Database, and Tomcat server. 30. Online Cab Booking System Ola and Uber are the online cab booking system that almost every one of us has become used. So building such a Java application would be the best idea. Abstract: In this project, the main objective is to help customers in booking a cab to reach their destination with pick-up as their preferred location. The application fetches your pick-up location when you enter the drop location, when entered, fetches a cab driver nearby and even tells you the calculated time the cab will take to drop you at the location. The system is designed using Spring MVC, Servlets, Hibernate, JDBC, JSP, HTML, and CSS. Technologies Required: Java, HTML, CSS, JavaScript, JSP, JDBC, Java Spring, Java Servlet, MySQL, and Tomcat Server. 31. Crime Records Management System Based on the number of crimes being committed, this crime record management system is a secured application built using Java. It allows you to keep a record of the entries made of the number of crimes being committed. Abstract: This Java-based web application runs on a Tomcat server and uses MySQL as a database. Its main management features include managing crimes, Handling FIRs, records of criminals, and complaints registered. You can develop a secured application using EJB, Spring, and Hibernate. You need MySQL database to run this project and MySQL J-Connector to make connection between MySQL and Java. Technologies Required: Java, JDBC, JSP, JDBC, Java Spring, Java Servlet, MySQL, and Tomcat Server. 32. Color Hunt Gaming Project This Java-based gaming application is a mind game consisting of differently-colored letters which are randomly arranged. It is a kind of mind game that is built with the intention to increase your thought process. Abstract: Basically, in this game, there are different colors printed on the text, whatever statement gets displayed, you have to click on the mentioned color. As soon as you click on one, the other comes suddenly. You lose points when you dont click on the color displayed. Theres also a time limit given in which you have to guess a given number of points. This game is built in a way that it can only be played on android phones. Technologies Required: Java, Android, and XML. 33. Online CV/Resume Builder Youre ready to apply for a job but dont have an interesting CV/which perfectly shows your skills and qualifications. Online CV/resume builder provides the rescue when just by entering required details youll get your CV/Resume in pdf format which is auto-generated. An online resume builder project is an internet-based application that can help students and other professionals to get an instant resume template, which they can fill easily with their credentials. An online resume builder provides different standard templates that can be downloaded in different formats like PDF and others. A user will not have to spend a lot of time on formatting and designing his or her resume. He will only enter his particulars and download his CV on the go. Abstract: The online resumeic builder application helps job seekers to build a CV with a proper format. It has different templates to choose from wherein you can opt for the best from which suits you best. This application contains various modules which are user, skills, job, salary, and resume. Using these modules, different sections of a CV are made and after entering the details you get a properly organized CV. Technologies Required: Java, MySQL Database, JDBC, Java Servlet, JSP, and Tomcat Server. This application tells you the weather-related information about your location and also of other locations. This Java-based application can be the best project for your minor project submission. Abstract: Due to the change in weather, we can predict whether its going to be a rainy day, sunny day, or cold day. But sometimes, all of a sudden you see climate change. With the help of a weather information service such as a Java-based project, you can get to know the temperature not only your but also worldwide. The application picks up the default location and displays the weather data report. It tells you the temperature, rain, humidity, and even the direction of the wind blowing. Technologies Required: Java, Java Servlet, Tomcat Server, HTML, CSS, and JavaScript. 35. Exam Seating Arrangement System Exam Seating Arrangement System, the application implemented using JSP, Java, and MySQL. This application will help the examination handling manager to organize the allocation of seats for all the students. Abstract: This application helps in the details of the students be it name, roll no, section, branch, or year and stores it in databases. The admin is held responsible for managing the details, here the application is made to automate the seats allocates to students and this final list goes out on the day of examination which helps in not getting the seats revealed prior. The modules existing here are the student module, admin module, and seat module. This automated system helps in maintaining the record and proper functioning of the system. Technologies Required: Java, HTML, CSS, JSP, JavaScript, MySQL, and Tomcat Server. 36. Traffic Controller System The Traffic Controller System is a Java JSP and MySQL-based project, which is developed for process automation of the Traffic Controller System. Abstract: The objective of this application is to create a system that controls the traffic which is done by implementing a set of classes and interfaces. The main features can be traffic lights, routes, diversions, and traffic. It is a secured application that runs in the JVM. A GUI is created using JavaFX and classes for performing different operations such as the structure of the traffic network, and the main view of the traffic network are faced. It can be the best project to avoid natural disasters. Technologies Required: Java, HTML, CSS, JSP, JavaScript, MySQL, and Tomcat Server. 37. Disaster Management System Disaster management System is a Java-based application that identifies and implements techniques for reducing the causes of the disaster and the losses faced. It can be the best project to avoid natural disasters. Abstract: Applications like this have four stages: mitigation, readiness, response, and recovery. Each process aims to reduce the risks occurred due to natural disasters like earthquakes, tsunami, etc. The process follows when theres a report submitted by the affected region, the data is collected and reported to the concerned authority to take measures. It is a web-based Java Swing project which stores data in MySQL for future references. The UI has a login page, lists of earthquakes that happened, a new user page, and a user list. Memory Game Flipping Tiles Memory Game is a mind game where you have to remember the position of tiles placed earlier and re-assign them within the stipulated time. This game is implemented to play with your mind and bring the best. Technologies Required: Java, Java Swing, JSP, JDBC, MySQL, and Java Servlet. 38. I-D Card Generator System ID Card Generator is a web-based Java project which uses the Swing library. It generates an ID of the entered details of the individuals and gives you a copy of the ID card. The features can be storing the data in the database, having a unique identification number assigned to each individual, and no forgery allowed. Technologies Required: Java, Java Servlet, Java Swing, JSP, HTML, CSS, JavaScript, JDBC, MySQL, and Tomcat Server. 39. Memory Game - Flipping Tiles Memory Game is a mind game where you have to remember the position of tiles placed earlier and re-assign them within the stipulated time. This game is implemented to play with your mind and bring the best. Abstract: This Java-based gaming application is built using Swing. The games intention is to test our memory, here, we see an even number of tiles in which each number has a pair. All the tiles are kept facing downwards, all the tiles have to be flipped one by one, and when two tiles get matched they are removed from the board. When theres no match, the tiles are kept back in position. Technologies Required: Java, Java Swing, Java OOPS, and ArrayLists in Java. 40. Chat Application Chat application has gained great popularity among individuals these days. This is similar to Instagram, Facebook, and Orkut. This online chat application using Java uses graphical components in the Swing toolkit in Java and uses JFrame. Its features include signing up, signing in, chatting, sending and accepting requests, and creating groups. You can also create a free account. It also checks whether theres any fake account and gives you access to the users. Technologies Required: Java, Java Swing and JDBC. Advanced Level Java Projects Ideas The below-given list consists of some advanced-level Java project ideas which can be used as major projects by the students or professionals. 41. Social Networking Site Social Networking Site has gained a lot of popularity among individuals. It is Java JSP and MySQL project, running on the tomcat server. The management of users, photos, and videos are taken care of by the server. Abstract: The application has many features including a login page, a home page displaying all the posts by friends added to your account, a notification page displaying all the alerts, and a profile page where you can edit the details, and also upload a picture of yours. It uses HTTP requests to complete the operation which is being sent to the server. The process that the server follows is decoding the request, authenticating the user, and making changes to the database. JSON is used here to encode the result if found anything other than boolean. Technologies Required: Java, Maven, J2EE, HTML, CSS, JDBC, MySQL, and Tomcat Server. 42. Bug Tracking System A system that keeps track of bugs that occurred during the development of a project. This Java-based application is created to help developers to manage bugs/errors occurring during SDLC. Abstract: Bug Tracking System is an application that focuses majorly on tracking the bug and changing its status. When the developer gets the help of a bug tracking system, he/she can easily his/her during SDLC. The modules present in this can be the developer, admin, and management modules. The system records all the bugs in their detail so that the developer can work on them one by one. Technologies Required: Java, JDBC, JNDI, Servlets, JSP, Oracle/Access, RetHat JBoss AS, JavaScript, HTML, and CSS. 43. Text Editor in Java Text Editor built using Java is similar to a notepad application. You can also create text documents and edit them using the feature to save the text entered in it. Abstract: A Text Editor built using Java uses JTextArea, JMenu, JMenuItems, and JMenuBar to perform its task. It allows the user to write, change, store, and print text. It also has a file menu to make changes in files (like open, save, close, and print) for future references. and an edit menu to cut, copy and paste texts. Also, it has a Save and Submit button to close the file after saving the data. An ActionListener is used to handle input and events which consist of one or two words executed. Technologies Required: Java, Java Swing, Java AWT, JTextArea, JMenuBar, JMenu, and JMenuItems. 44. Digital Steganography Security is a major concern be it in organizations, military, hospitals, schools, etc where theres any fake account and gives you access to the users. This Java-based application built for advanced programmers which is digital steganography. Abstract: Digital Steganography Security is a major concern be it in organizations, military, hospitals, schools, etc where theres a data transfer happening. This data needs to be protected for advanced programmers which is digital steganography. Abstract: Digital Steganography is the process in which data is sent from one point to another without affecting other users and also keeps the data secure. It uses multimedia as a covering medium. It embeds the text or image and stores it in the least significant bit of the image. It doesnt even create suspense for the hackers. This is the best project advanced programmers on Java can work on. It contains both sender and receiver side programs to let the user choose whether to send or receive data. Technologies Required: Java, Java Servlet, MySQL or Oracle Database, JDBC, TomCat Server, JSP, HTML, CSS, and JavaScript. 45. Criminal Face Detection System The Criminal Face Detection System application is built to detect the faces of criminals by matching them with the pre-existing data in the database. It could be the best way, and also building this would be of great help to advance programmers is easy. Abstract: The system is intended to use the images between the human and identification will be done according to images taken of different people. This project aims to build an automated CFD system by levering the human ability to recall minute facial details according to images taken of different people. This project aims to build an automated CFD system by levering the human ability to recall minute facialdetails. Identification of criminals at the scene of a crime can be achieved in many ways like fingerprinting, DNA matching, or eyewitness accounts. Out of these methods, eyewitness accounts are preferred because it stands scrutiny in court and it is a cost-effective method. It is possible that witnesses to a crime have seen the criminal though in most cases it may not be possible to completely see the face of the perpetrator. Tip: We can also get this project done in Python language even better because of help of existing present libraries out there namely numpy and other tools: Keras. It will be easier to do in python language but doing via java makes one crystal clear about networking, machine mearning and java apllliciation onboard running concepts clear. Technologies Required: TensorFlow, Core java, Machine learning, SQLite, OpenCV(eccentric tool), Strong knowledge of advanced java concepts. 46. Airline Reservation System Airline Reservation System with Advanced Features With the increase in modernization, everything has come online. This application helps customers book flight tickets by just being at their comfort place and also manages the availability, and timing of the flight. Abstract: To ease and automate the reservation process system provides information like passengers information and a criminal list of all passengers. The software consists of modules: User registration, login, reservation, and cancelation. The project includes online transaction fares, inventory, and e-ticket operations. Do remember not to mix it with Library Management System as here we have to go in and submit the particular details of the clients side as mentioned below which are required. Prerequisites Required: By far we are aware of Applets, Servers, Servlets, AWT, and Core Java concepts already with Collection Framework. TechnologiesRequired- Core Java, Java AWT, Java Applet, Database-MySQL 47. Advanced Chatting Application When everything has come online, chatting is also performed online be it your online friends or anyone. Hence, this advanced chatting application has advanced features like smooth communication with video and audio call facilities, and many more. Abstract: There can be no system rather we dop have multiple systems connected together. Client and Server communication takes place instead of basic request-based communication. This application will be used to communicate through Sockets . The server and client can run on different computers in the same network. There can be multiple clients connected to a server and they can chat with each other. These days with every application, we are having a feature Help to chat with a bot right from traveling apps such as Ola, and Uber for food apps such as Zomato and Swiggy, this chatbox is embedded in every. Sockets are something new that one has to learn here to advancement of the project because they will be used for networking, and TCP/IP protocols so concepts make place instead of basic request-based communication. Technologies Required: Java, Java Network-based libraries, Java Sockets, File handling, and Exception Handling. 48. Customer-Relationship Management It is a bit tedious but an easy pick among advanced-level java projects. It is designed for an larger dataset in real-time for which we need to inculcate tools like Hibernate, MVC, CSS, JDBC, etc. Do create in a high-tech way invoking the above tools so that internal working of such tools can be perceived. Abstract: It is the easiest of all projects at the advanced level as the name suggests that we have to build an application where we will be building relationships with customers by adding new customers in software, updating their track of all the customers. Adding new customers, editing their information, and deleting them when needed. Fetching already recorded customer details whenever required. TechnologiesRequired: Spring Framework, Hibernate, HTML, CSS, JDBC, CRUD, MVC, and DB(MySQL) Java Project Ideas For Beginners and Advanced 49. Email System A great medium to converse in an official way is through e-mails. Email system implemented using Java is of great value to organizations. So, advanced programmers can focus on the implementation of this project The project functions something like this the ISPs (Internet Service Provider) mail server handles the emails sent from an ISP. All the sent emails first come to the mail server, after which they are processed and forwarded to the collectors destination where another mail server is located. The mail server on the collector side receives the incoming emails and sorts them electronically in the inbox. Now, the recipient can use their email application to view the received emails. This application which makes it much safer than the existing small client software. Abstract: This Email System is designed for sending and receiving emails for official communication which has a proper interface system. This system can use HTTP port 80 to access emails, also the two main protocols which can be used are SMTP (Simple Mail Transfer Protocol) and POP3 (Post Office Protocol). The email server that one uses is configured with the SMTP API can be used to transfer data. The ISP mail server receives all the mail sent, processes it, and then forwards it to the destined address. It is one of good project ideas among advance level project as it is of hard nut among projects we have discussed above and it will take a lot of time to properly build it. Technologies Required: Event Handler, HTTP, Protocols (like SMTP and POP3). 50. Advance Sudoku Game Sudoku is something which almost every one of us must have played. This game is all related to logic-building so once you play this, it gets easy for you to build logic so building this application is of great use. Abstract: Building the same common sudoku game but with help of JavaFX. Generating a new puzzle in each session, keeping track of user input. Checking user input against the generated solution. Keeping track of selected numbers will be necessary for some of the functions and also the ability to check for errors and give hints in which we can invoke trained models from larger datasets from machine learning and artificial intelligence. TechnologiesRequired: Core Java , Java FX , Event Listeners , MVC, Collection APIMust Read:

Project concept example. Oops concepts in java project. Concepts in java. Project topics in java. Java project ideas. Java concepts explained. Project based on oops concepts in java.