|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| S.No | Topics | Project | Page No |  |
|  | Variables and Primitive Data Types | dinosaur profile generator | 31-41 | 1 |
|  | Operators and Casting | Dino meal planner | 44-65 | 1 |
|  | Conditional Statements | Task allocation system | 69-90 | 1 |
|  | Understanding Iteration | Dino meal planner ( with Iteration Concept) | 91-111 | 1 |
|  | Working with Arrays | Dino tracker | 113-133 | 1 |
|  | Methods | Mesozoic Eden assistant | 135-156 | 2 |
|  | Classes, Objects, and Enums | Mesozoic Eden park manager | 159-211 | 2 |
|  | Inheritance and Polymorphism | Project You will be developing a more advanced version of the Mesozoic Eden park manager console application | 214-267 | 2 |
|  | Multithreading |  |  | 2 |
|  | Writing DSA lab programs in Java |  |  | 2 |
|  | Simulate the following CPU scheduling algorithms using Java to find turnaround time and waiting time a) FCFS  b) SJF c) Round Robin d) Priority. |  |  | 1 |

**Beginner Level Java Projects Ideas**

The below-given list consists of some beginner-level Java project ideas which 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 displays 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. You also get a regular update when there’s a change in the value of the country’s currency and also the conversion rate.

People use this application basically for business, shares, and finance-related areas where currency exchange and money transfer happen daily. You get a preferred choice to convert any country’s 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. 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 feature that holds the access to do any kind of changes like update, delete, and add user records to the list.

Various users of the application where users can access are:

Admin

Student

Faculty

Technologies Required: Java Servlet, MVC architecture, Maven MySQL, Tomcat Server JSP, HTML, CSS, and JavaScript.

**3. Simple Banking Application**

Simple Banking Application is a simple Java project for beginners to start their career in coding. You’ll 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. You get 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.

**4. Library Management System**

Learning Management System, this project 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).

**5. 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 counting words. 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 there’s no word count limit.

Technologies Required: Java, Java Swing, Java Framework (JFrame), and Applet.

**6. 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 details of the account.

Technologies Required: Java, J2EE, Apache Tomcat Web Server, and Oracle.

**7. Airline Reservation System**

This Java project is built to help the customers book tickets online, check the availability of seats, get the details of the flight arrival, select the class they want to choose, and departures 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 choice.

Technologies Required: Core Java, HTML, JavaScript, and SQL Database.

**8. 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 new visitors.

Abstract: Tourists and even general people travel from one place to 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 you’re going to visit. You can access all the details of the city. In this application, users need to sign up by entering input details and then can access all the required details of the city. It contains various modules like admin, tourism, business, and student wherein users can switch to the module as per the requirement.

Technologies Required: Java, JDBC ODBC 2.0 drivers, Oracle Database, J2EE, AJAX, and XML.

**9. 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 application’s 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 user’s profile.

Technologies Required: Java, MS Access database, Java Swing, Java Graphical User Interface (GUI), and JFrame.

**10. 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 ordered items.

Technologies Required: Java, Java Swing, AWT, JDBC, and MySQL Database.

**11. 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 user’s 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 items list, categories, and buyers list.

Technologies Required: Java, JDBC, MySQL Database, JSP, JavaScript, servlet, HTML and Ajax.

**12. 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. This 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 where the user has 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 user’s profile.

Technologies Required: Java, J2EE, MySQL Database, and JDBC.

**13. 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 can be 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, MySQL database, Tomcat Server, JDBC, and Servlet.

**14. 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 ongoing tasks. It also has a password for the users to log in to keep the data secure.

Abstract: This application 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 as it 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.

**15. 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 key 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.

**16. 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 and asks you to enter the drop location, when entered, finds 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.

**17. 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 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 connections between MySQL and Java.

Technologies Required: Java, JSP, JDBC, 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 don’t click on the color displayed. There’s also a time limit given in which you have to reach a given number of points. This game is built in such a way that it can only be played on android phones.

Technologies Required: Java, Android, and XML.

**18. 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 takes 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.