Java Projects to do

-Based on Skill level.

**Basic Projects**

1. **Hello World**
   * **Description**: Print “Hello, World!” to the console.
   * **Skills**: Basic syntax, understanding of the Java runtime environment.
2. **Simple Calculator**
   * **Description**: Perform basic arithmetic operations: addition, subtraction, multiplication, and division.
   * **Skills**: User input handling, basic arithmetic, control flow.
3. **Temperature Converter**
   * **Description**: Convert temperatures between Celsius, Fahrenheit, and Kelvin.
   * **Skills**: Basic arithmetic, handling user input.
4. **Number Guessing Game**
   * **Description**: A game where the user guesses a randomly generated number within a range.
   * **Skills**: Random number generation, loops, conditionals.
5. **Palindrome Checker**
   * **Description**: Check if a string is a palindrome.
   * **Skills**: String manipulation, conditionals.
6. **Fibonacci Sequence Generator**
   * **Description**: Generate the Fibonacci sequence up to a given number.
   * **Skills**: Loops, recursion (optional).
7. **Basic Contact Manager**
   * **Description**: Store and manage a list of contacts with names and phone numbers.
   * **Skills**: Array or ArrayList handling, basic file I/O (optional).
8. **Simple ATM System**
   * **Description**: Simulate an ATM where users can check balance, deposit, and withdraw money.
   * **Skills**: Basic user input handling, conditional statements.
9. **Basic Stopwatch**
   * **Description**: Implement a simple stopwatch with start, stop, and reset functionality.
   * **Skills**: Working with time, basic user interface.
10. **Simple Address Book**
    * **Description**: A console-based application to add, remove, and view contacts.
    * **Skills**: Arrays or lists, file handling.

**Intermediate Projects**

1. **Student Management System**
   * **Description**: Manage student records including adding, updating, and viewing student information.
   * **Skills**: Object-oriented programming, file handling or database integration.
2. **Library Management System**
   * **Description**: Track book checkouts, returns, and inventory.
   * **Skills**: Object-oriented programming, data storage.
3. **Expense Tracker**
   * **Description**: Track personal expenses and generate summaries.
   * **Skills**: Data management, user interface design.
4. **To-Do List Application**
   * **Description**: Manage tasks with options to add, remove, and view tasks.
   * **Skills**: Lists or arrays, file handling.
5. **Quiz Game**
   * **Description**: Create a quiz game that asks questions and keeps track of scores.
   * **Skills**: Arrays or lists, conditionals, loops.
6. **Simple Banking System**
   * **Description**: Simulate basic banking operations like creating accounts, deposits, and withdrawals.
   * **Skills**: Object-oriented programming, file handling.
7. **Weather App**
   * **Description**: Display weather information for a specific location using an API.
   * **Skills**: API integration, JSON parsing.
8. **Basic Web Scraper**
   * **Description**: Extract and display data from a website.
   * **Skills**: HTTP requests, HTML parsing.
9. **Simple Game (e.g., Tic-Tac-Toe)**
   * **Description**: Create a basic game that can be played in the console or with a simple GUI.
   * **Skills**: Game logic, arrays, user interface design.
10. **Password Generator**
    * **Description**: Generate secure random passwords based on user specifications.
    * **Skills**: Random number generation, string manipulation.

**Advanced Projects**

1. **Personal Diary with Encryption**
   * **Description**: A diary application with encryption for secure entries.
   * **Skills**: File handling, encryption, user authentication.
2. **Simple Chat Application**
   * **Description**: Implement a chat application where users can send and receive messages.
   * **Skills**: Networking (sockets), multithreading.
3. **E-commerce Platform**
   * **Description**: A basic online store with product listings, a shopping cart, and order management.
   * **Skills**: Object-oriented programming, web development (if using frameworks).
4. **Flight Reservation System**
   * **Description**: Manage flight bookings, cancellations, and searches.
   * **Skills**: Object-oriented programming, user interface design, file or database handling.
5. **Inventory Management System**
   * **Description**: Track inventory items, including addition, removal, and status updates.
   * **Skills**: Data management, object-oriented programming.
6. **Simple Blogging Platform**
   * **Description**: A platform where users can create, edit, and delete blog posts.
   * **Skills**: Web development basics, file or database storage.
7. **Recipe Management Application**
   * **Description**: Store, search, and manage recipes with ingredients and instructions.
   * **Skills**: Object-oriented programming, file handling or database integration.
8. **Sudoku Solver**
   * **Description**: Solve Sudoku puzzles using algorithms.
   * **Skills**: Algorithms, recursion, 2D arrays.
9. **Currency Converter with API**
   * **Description**: Convert currencies using real-time exchange rates from an API.
   * **Skills**: API integration, data parsing.
10. **Simple Video Player**
    * **Description**: Develop a basic video player with play, pause, and stop functionalities.
    * **Skills**: Multimedia handling, GUI design.
11. **Event Management System**
    * **Description**: Manage events, including creation, updating, and tracking attendees.
    * **Skills**: Object-oriented programming, file or database management.
12. **Simple Forum**
    * **Description**: A forum where users can post messages, reply, and create threads.
    * **Skills**: Web development, database integration.
13. **Note-taking Application**
    * **Description**: A tool for creating, editing, and organizing notes.
    * **Skills**: File handling or database storage, GUI design.
14. **Recipe Finder with API Integration**
    * **Description**: Suggest recipes based on available ingredients using an API.
    * **Skills**: API integration, data processing.
15. **Simple Email Client**
    * **Description**: An application to send and receive emails using an SMTP/IMAP server.
    * **Skills**: Networking, email protocols.
16. **Project Management Tool**
    * **Description**: Manage projects, tasks, and team members with a simple interface.
    * **Skills**: Object-oriented programming, user interface design.
17. **Password Manager with Encryption**
    * **Description**: Securely store and manage passwords with encryption.
    * **Skills**: Encryption, file or database handling.
18. **Simple Game Engine**
    * **Description**: Create a basic engine for developing 2D games.
    * **Skills**: Game development fundamentals, graphics programming.
19. **Time Tracking Application**
    * **Description**: Track time spent on various tasks or projects with reporting.
    * **Skills**: Data management, user interface design.
20. **Voice Command Application**
    * **Description**: Implement a voice command system to perform actions based on spoken commands.
    * **Skills**: Speech recognition integration, command handling.
21. **Online Polling System**
    * **Description**: Allow users to create polls, vote, and view results.
    * **Skills**: Web development, database integration.
22. **Chatbot with Natural Language Processing**
    * **Description**: Create a chatbot with basic natural language understanding.
    * **Skills**: Natural language processing, user input handling.
23. **Personal Finance Manager**
    * **Description**: Manage finances with features for budgeting, expense tracking, and reporting.
    * **Skills**: Data analysis, user interface design.
24. **Simple Social Media Platform**
    * **Description**: Develop a basic social media application with user profiles and posts.
    * **Skills**: Web development, database management.
25. **Simple Image Editor**
    * **Description**: Implement basic image editing functionalities like cropping, resizing, and filtering.
    * **Skills**: Image processing, GUI design.
26. **Real-time Stock Price Monitor**
    * **Description**: Display real-time stock prices using a financial data API.
    * **Skills**: API integration, data visualization.
27. **Library Catalog System**
    * **Description**: Manage and search a catalog of books in a library.
    * **Skills**: Object-oriented programming, database integration.
28. **Music Streaming Service**
    * **Description**: Develop a basic music streaming application with playlists and playback features.
    * **Skills**: Multimedia handling, GUI design.
29. **Virtual Pet Game**
    * **Description**: Create a game where users care for a virtual pet, managing its needs and activities.
    * **Skills**: Game logic, object-oriented programming.
30. **Smart Home Simulation**
    * **Description**: Simulate a smart home with devices that can be controlled through an interface.
    * **Skills**: Object-oriented programming, GUI design.
31. **Peer-to-Peer File Sharing System**
    * **Description**: Implement a basic file-sharing system where users can share files directly with each other.
    * **Skills**: Networking (sockets), file handling.
32. **Language Translation Tool**
    * **Description**: Translate text between different languages using an external translation API.
    * **Skills**: API integration, string processing.
33. **Virtual Whiteboard**
    * **Description**: Create a virtual whiteboard where users can draw, write, and save their work.
    * **Skills**: Graphics programming, GUI design.
34. **Simple CRM System**
    * **Description**: Manage customer relationships with features for tracking interactions, sales, and contact information.
    * **Skills**: Object-oriented programming, database integration.
35. **Simple Content Management System (CMS)**
    * **Description**: Build a basic CMS for managing web content with features like creating, editing, and publishing pages.
    * **Skills**: Web development, file or database handling.

Compiled list by KMautsa

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CS Major Path