**Implement the following projects which focus on different aspects of Java programming, including:**

**Object-Oriented Programming principles**

**Exception handling**

**File operations**

**Data structures**

**Input validation**

**User interface design**

**1. Calculator Application**

Create a simple calculator that can perform basic operations (add, subtract, multiply, divide) using methods using object oriented programming in Java.

Key points:

- Use switch statement for operations

- Handle division by zero

- Implement input validation

**2. Bank Account Manager**

Design a BankAccount class that manages deposits, withdrawals, and maintains balance with proper validation using object oriented programming in Java.

Key points:

- Prevent negative balance

- Track transaction history

- Use proper access modifiers

**3. Student Grade Calculator**

Create a program that calculates average grades and determines pass/fail status for multiple students using object oriented programming in Java.

Key points:

- Use arrays to store grades

- Implement input validation (0-100)

- Calculate GPA equivalent

**4. Library Book Management**

Implement a simple library system to track books, their availability, and borrowing status using object oriented programming in Java.

Key points:

- Use ArrayList for book collection

- Track due dates

- Implement search functionality

**5. Temperature Converter**

Build a program that converts temperatures between Celsius and Fahrenheit with GUI using object oriented programming in Java.

Key points:

- Use JavaFX or Swing

- Handle decimal points

- Implement input validation

**6. Password Validator**

Create a program that validates passwords based on specific criteria using object oriented programming in Java.

Key points:

- Check length (minimum 8 characters)

- Require numbers and special characters

- Use regular expressions

**7. File Word Counter**

Develop a program that reads a text file and counts words, lines, and characters using object oriented programming in Java.

Key points:

- Use File I/O

- Handle file not found exceptions

- Create summary report

**8. To-Do List Manager**

Build a console-based to-do list application with basic CRUD operations using object oriented programming in Java.

Key points:

- Use collections framework

- Implement task priorities

- Allow task completion marking

**9. Number Guessing Game**

Create a game where users guess a random number with hints using object oriented programming in Java.

Key points:

- Use Random class

- Track number of attempts

- Implement difficulty levels

**10 Address Book**

Implement an address book that stores and manages contact information using object oriented programming in Java.

Key points:

- Use HashMap for storage

- Implement search functionality

- Allow contact editing/deletion