Assignment 2

1. Write a method to calculate the area of a circle given its radius. The method should take two parameters: a double representing the radius and a double for the area. The method should return the area as a double.

2. Write a method to check if a number is prime. The method should take an integer as its parameter and return a boolean value indicating whether the number is prime or not.

3. Implement a custom sorting algorithm to sort an array of integers in ascending order. Your algorithm should be different from the built-in sorting methods.

4. Create a class that simulates a bank account. The class should have methods for depositing, withdrawing, and checking the balance. Create an instance of this class and perform some transactions.

5. Write a program that reads a CSV file containing student grades and calculates the average grade for each student. The file contains columns for student name, course name, and grade. Display the results in a table format.

6. Implement a simple calculator that can perform basic arithmetic operations like addition, subtraction, multiplication, and division. Allow the user to input numbers and operators and display the result.

7. Design a class to represent a stack data structure. The class should have methods for push (add element to the top), pop (remove element from the top), and peek (view the top element without removing it).

8. Create a class that simulates a simple bank account. The class should have methods for depositing, withdrawing, and checking the balance. Implement a method to calculate the interest on the account balance.

9. Write a program that reads a text file and counts the occurrences of each word. Display the words along with their counts in descending order of occurrence.

10. Implement a simple program that simulates rolling a six-sided die multiple times and calculates the average outcome.