

School of Computing and Data Science

Sai University

Practice Set 5: C++ Basics

1. Define a class **Rectangle** with data members **length** and **breadth**. Write a constructor to initialize both and a member function to calculate the area.
2. Write a program to create a class **Student** with data members **name**, **age**, and **marks**. Implement both a default constructor and a parameterized constructor to initialize the data.
3. Create a class **Complex** with two data members **real** and **imag**. Overload constructors to:
 - Initialize both to zero (default constructor).
 - Initialize with one value (real part only).
 - Initialize with two values (real and imaginary parts).
4. Implement a class **BankAccount** with data members **accountNumber**, **balance**. Write multiple constructors for:
 - Default initialization.
 - Initialization with account number only.
 - Initialization with account number and balance.
5. Write a C++ program with a class **Time** having data members **hours**, **minutes**, **seconds**. Overload constructors to:
 - Initialize all with zero.
 - Initialize hours and minutes, seconds defaulted to zero.
 - Initialize all three.
6. Design a class **Book** with attributes **title**, **author**, and **price**. Provide constructor overloading to allow creating:
 - Book with title only.
 - Book with title and author.
 - Book with title, author, and price.
7. Create a class **Distance** with data members **feet** and **inches**. Implement constructors for:
 - Default initialization.
 - Initialization using feet only.
 - Initialization using feet and inches.Also, write a function to display the distance.
8. Define a class **Car** with members **brand**, **model**, and **price**. Overload

constructors to:

- Initialize brand only.
 - Initialize brand and model.
 - Initialize brand, model, and price.
9. Write a program to create a class **Employee** with data members **name**, **id**, and **salary**. Implement:
- A constructor that initializes name and id only.
 - A constructor that initializes all three values.
10. Create a class **Fraction** with numerator and denominator. Overload constructors to:
- Initialize fraction as 0/1.
 - Initialize with numerator only (denominator = 1).
 - Initialize with numerator and denominator.

Also, add a member function to reduce the fraction to simplest form.