

## ASSIGNMENT-9

1. Write a program to accept the student's details such as name and 3 different marks by `get_data()` method and display the name and average of marks using `display()` method. Define a friend class for calculating the average of marks using the method `mark_avg()`.
2. Develop a C++ Program to Implement Friend Class for Adding two Numbers where class `sum` is declared as friend of other class used to read values
3. Create two classes: `Employee` and `Department`. Make `Department` class, a friend class of `Employee` class. In order to access the private and protected members of `Employee` class into `Department` class explicitly pass an object of `Department` class to the member functions of `Employee` class. Display the net salary of employee
4. Write a program to accept five different numbers by creating a class called `friendfunc1` and `friendfunc2` taking 2 and 3 arg respectively and calculate the average of these numbers by passing objects of the class to friend function.
5. Create a class '`COMPLEX`' to hold a complex number. Write a friend function to add two complex numbers. Write a main function to add two `COMPLEX` objects.
6. Create a class for counting the number of objects created and destroyed within various block using constructor and destructors
7. Write a program to calculate gross and net pay of employees from basic salary. Create an employee class which consists of employee name, `emp_id`, and basic salary as its data members. Use a parameterized constructor in the derived class to initialize data members of the base class and calculate gross and net pay of the employee in the derived class.
8. Define a class to represent a Bank account. Include the following members. Data members:- Name of the depositor Account number, Type of account, Balance amount in the account, Rate of interest (static data), Provide a default constructor, a parameterized constructor and a copy constructor to this class. Also provide Member Functions:- a. To deposit an amount. b. To withdraw the amount after checking for minimum balance. c. To display all the details of an account holder. d. Display rate of interest (a static function). Illustrate all the constructors as well as all the methods by defining objects.
9. A common place to buy candy is from a machine. The machine sells candies, chips, gum, and cookies. You have been asked to write a program for this candy machine.  
The program should do the following:
  - a. Show the customer the different products sold by the candy machine.
  - b. Let the customer make the selection.
  - c. Show the customer the cost of the item selected.
  - d. Accept money from the customer.
  - e. Release the item.

The machine has two main components: a built-in cash register and several dispensers to hold and release the products.

10. Define class cashRegister in C++ with the following descriptions :

Private Members:

cashOnHand of type integer

Public Members:

A default constructor cashRegister() sets the cash in the register to 500.

A constructor cashRegister(int) sets the cash in the register to a specific amount.

A function getCurrentBalance() which returns value of cashOnHand

A function acceptAmount(int) to receive the amount deposited by the customer and update the amount in the register

11. Define class dispenserType in C++ with the following descriptions :

Private Members:

numberOfItems of type integer

cost of type integer

Public Members:

A default constructor dispenserType () sets the cost and number of items in the dispenser to 50 each.

A constructor dispenserType (int,int) sets the cost and number of items in the dispenser to the values specified by the user.

A function getNoOfItems() to return the value of numberOfItems.

A function getCost() to return the value of cost.

A function makeSale() to reduce the number of items by 1.

12. When the program executes, it must do the following:

a. Show the different products sold by the candy machine.

b. Show how to select a particular product.

Once the user has made the appropriate selection, the candy machine must act accordingly. If the user has opted to buy a product and that product is available, the candy machine should show the cost of the product and ask the user to deposit the money. If the amount deposited is at least the cost of the item, the candy machine should sell the item and display an appropriate message.

Divide this program into three functions: showSelection, sellProduct, and main.

The function sellProduct must have access to the dispenser holding the product (to decrement the number of items in the dispenser by 1 and to show the cost of the item) as well as the cash register (to update the cash). Therefore, this function has two parameters: one corresponding to the dispenser and the other corresponding to the cash register.