

Advance Programming (Object Oriented Programming Lab)

Assignment-5

Due Date -1 Week

1. a. Design a STUDENT class to store roll, name, course, admission date and marks in 5 subjects taken from user. Create an array of STUDENT objects. Provide methods corresponding to admission date and receiving marks, preparing mark sheet. Support must be there to show the number of students who have taken admission.

b. Inherit Student class and override the input method so as to input the department of each student. Search and display a sorted list of students of one department or students based on scoring criteria. Create an arraylist of students and remove a student based on certain criterion and then call gc() and check for free memory.
2. a. Design a COMPLEX class, which will behave like normal integer with respect to
 - addition,
 - subtraction,
 - accepting the value and
 - displaying the value.

Example:

- ★ **Input** can be any of the following format(not bounded to any specific format)
 - if the no. have both img & real: **a+ib or a+bi**
 - if the no. have only img: **ib or bi** but not **0+ib or 0+bi**
 - if the no. have only real: **a** but not **a+i0 or a+0i**
- ★ **Output:** **a+ib or a+bi** format
- ★ First time for any operation two number will be taken as input, but in rest of the time for any operation one input will be taken and operates with the earlier output (like accumulator).

b. Design a class TIME which stores hour, minute and second. The class should have the methods to support the following:

- User may give the time value in 24-hour format.
- User may give the time value in AM/PM format
- Display the time in 24-hour format.
- Display the time in AM/PM format.
- User may like to add minute with a time value.

Compare current time with system time

3. Design a class for the following scenario:
 - An item list contains item code, name, rate, and quantity for several items.
 - Whenever a new item is added in the list uniqueness of item code is to be checked.
 - Time to time rate of the items may change.
 - Whenever an item is issued or received existence of the item is checked and quantity is updated.
 - In case of issue, availability of quantity is also to be checked.
 - User may also like to know price/quantity available for an item.