

Object Oriented Programming

Out: 19-10-2017

Homework # 1

Deadline:

24-09-2017

9:00 am

Structures in C++

(a) Implement a C++ struct named "**Employee**" with id, name, salary, height and designation as fields of this struct.

(b) Write functions to read in and print an Employee struct:

- void printEmployee(const Employee& c);
- Employee readEmployee();

(c) Write an additional function that passes in an array of Employees and returns the index to a found id.

- int findEmployee(const Employee emp[],int id,int num);

Classes in C++

1. Time

Implement the following class **Time** and write a driver program using its functions:

Time
hr
min
sec
setTime(int,int,int)
printTime
nextTime(int)

2. Dice

Using the **Dice** class implement a 'dice roll' game. i.e. you roll two dices and if the sum of their facevalues is greater than 7 you win else you lose.

Dice
facevalue
roll
getFaceValue

3. Book

Implement the following class **Book** and write a driver program using its functions.

Book
title
author
price
pages
chapterNames
<i>think about</i>
<i>member functions</i>

4. Computer

Implement the following class **Computer** and write a driver program using its functions..

Computer
manufacturer
processor
ram
screenSize
wifi
<i>think about</i>
<i>member functions</i>

Interaction between objects:

1. 3DPoint

Implement the class for 3DPoint and write a driver program for its functions:

3DPoint
<i>think about attributes</i>
setPoint(int,int,int) printPoint getDistance(3DPoint) negate

2. ComplexNo

Knowing the **ComplexNo** class to be as follows. Implement its all functionalities and write a nice driver program to create a mini calculator for complex no.s. Identify which functions will be public and which not.

ComplexNo
Real Imaginary
add subtract multiply divide conjugate

3. RationalNum

Think about **Rational Number** as an entity. Implement it as a fully functional class and write a driver program for it so that it reads a file **input.txt**, containing the sequence of rational numbers and the operations to perform on them and generates an output as the results and store it in file as mentioned in **output.txt**.

Bonus: Make your functions robust, thus creating a safe data type.