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Courses » Design and pedagogy of the introductory programming course

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Unit 5 - Week 4

Course outline

How to access the portal

Week 1

Week 2

Week 3

Week 4

- Lecture 17 : Advanced Programming Topics.0: Introduction, Organization of medium sized programs
- Lecture 18 : Advanced Programming Topics.1: Advanced memory management, Standard Library
- Lecture 19 : Advanced Programming topics.2: Object Oriented Programming, Concluding remarks

Assignment 4

The due date for submitting this assignment has passed.
As per our records you have not submitted this assignment.

Due on 2018-09-26, 23:59 IST.

Assignment 4

1) Which of the following is false? ***1 point***

○ If I break a program into small functions then it will likely increase the total length.

○ If we are writing a program we should first write it as a single long main program and then break it into functions.

○ If the teacher writes the main program and asks the students to write the function bodies it is helpful to the students

○ Students may not immediately see why it is useful to break a program into small functions.

No, the answer is incorrect.
Score: 0

Accepted Answers:
If we are writing a program we should first write it as a single long main program and then break it into functions.

2) In the formula drawing problem we suggested that the input should be given so that there are parentheses for every operator, e.g. (a+b*c+d) will be given to the program as (a+((b*c)+d). This was done because (tick all correct answers): ***1 point***

□ This will simplify the program code.

□ We want to check whether students handle parentheses correctly.

□

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Accepted Answers:

This will simplify the program code.

With this the programmer does not have to worry about operator precedence.

3) Consider the strategy of ensuring that every object allocated on the heap has exactly one pointer pointing to it. Which of the following is not true regarding this strategy: ***1 point***

○ If some pointer variable P is being deallocated, the strategy requires us to delete the variable pointed to by P.

○ If we make a copy of a pointer variable P, we must make a copy of the object P points to.

○ If we consistently use this strategy we will neither have dangling pointers nor memory leaks.

○ This strategy will ensure that we ensure memory in the most efficient manner.

No, the answer is incorrect.

Score: 0

Accepted Answers:

This strategy will ensure that we ensure memory in the most efficient manner.

4) Suppose I have a data structure consisting of a cycle of three Node objects, where the first Node object contains a pointer to the second, the second to the third, and the third to the first. Can such a data structure be correctly implemented using deep copy or reference counting? ***1 point***

○ Not possible using deep copy, and not possible using reference counting.

○ Possible using deep copy, but not possible using reference counting.

○ Possible using reference counting, but not possible using deep copy.

○ Possible using either deep copy or reference counting.

No, the answer is incorrect.

Score: 0

Accepted Answers:

Not possible using deep copy, and not possible using reference counting.

5) We should teach object oriented programming, OOP, because (tick all those which apply): ***1 point***

□ OOP makes it easier to develop large programs.

□ OOP makes it easier to develop software components which can be used without how they are implemented inside.

□ OOP is easier to learn than standard procedural programming.

□ OOP leads to faster programs.

No, the answer is incorrect.

Score: 0

Accepted Answers:

OOP makes it easier to develop large programs.

OOP makes it easier to develop software components which can be used without how they are *implemented inside.*

6) Which of the following is not a reason to allow access to data members of an object using member functions only? ***1 point***

○ The data members can be changed without having to change the user program.

○ It is more efficient to access data members using member functions.

○ Typical operations may need to modify several data members, in which case member functions will ensure consistent modification.

○ We do not want to expose the implementation of the functionality to the user.

No, the answer is incorrect.
Score: 0

Accepted Answers:
It is more efficient to access data members using member functions.

7) Which of the following is false? ***1 point***

○ If I have two categories of objects one of which is a subcategory of the other I should use inheritance.

○ I notice that a certain member function is identical in two classes, I should inherit the classes from a superclass and define the common member function in the superclass.

○ If A is a superclass of B, then objects of class B can be pointed to by variables of type A*.

○ Inheritance is harder to understand than encapsulation.

No, the answer is incorrect.
Score: 0

Accepted Answers:
I notice that a certain member function is identical in two classes, I should inherit the classes from a superclass and define the common member function in the superclass.

8) For the introductory programming course, which of the following features of objected programming is least important? ***1 point***

○ encapsulation
○ member functions
○ inheritance
○ composition/aggregation

No, the answer is incorrect.
Score: 0

Accepted Answers:
inheritance

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