SIT102 – Introduction to Programming

Answers for 3.1P Hello User

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Question 1: Describe the three key building blocks of structured programming: sequence, selection, and repetition.

Sequence: Code that is executed one instruction after the other in a specific order

Selection: Code that takes multiple paths where one path is executed based on the condition of something

Repetition: Code that is repeatedly executed until the condition is satisfied/unsatisfied.

Question 2: The computer can perform more complex control flow interactions than those supported by structured programming (through use of "goto" for example). Why is it useful to limit the ways we structure the logic within our program's code?

It is important to limit the ways logic can be structured so that the code does not get confusing to understand. If it's structured, the code can be easier to follow and therefore less prone to bugs as well as making it easier to find them.

Question 3: Describe the Boolean operators **and**, **or**, and **not**. Indicate some example of how these can be used to help create meaningful tests.

And, or and not operators are used to connect multiple statements together. For example, we can use the and operator to check to see if somebody's password and their two-factor authentication code are both correct. If they are, log them in. The or operator can be used if somebody puts extra cheese or tomato on their pizza. If they put either of the extra toppings on, charge them extra. The not operator can be used to check the opposite of a condition, such as if a person is not on the losing team, to give them a medal.

Question 4: Describe the two selection statements in C++.

The selection statements known as if and switch statements. An if statement can have two or more paths but only one can be chosen depending on whether condition is met or not. A switch statement can also have two or more paths and those paths are known as cases. They function very similarly to an if statement, however their main difference is that switch statements can also check conditions that are not binary before choosing the case to execute.

Question 5: Describe the two repetition statements covered this week.

While loops and do while loops are the repetition statements covered this week. They do virtually the same thing, it's just that while loops check the condition that is given to them before the code in the loop is executed in order to decide whether it should do so. Do while loops check the condition after the code has been executed once and checks to see whether it should do it again.