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27

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Ms. Jen P. Satoras

School of Computing and Information Technologies

PROGCON - CHAPTER 1

CLASS NUMBER: 19

SECTION: AC192

NAME: RIEGO, NIKKI

DATE: NOV . 1

PART 1: Identify the following.

Computer System

1. A combination of all the components required to process and store data using a computer.

Hardware

2. The equipment or physical devices that are associated with a computer.

Software

3. The computer instructions that tell the hardware what to do.

Program

4. The instruction sets written by programmers.

Application Software

5. A type of software such as word processing, spreadsheets, payroll and inventory, even games

Syntax Error

6. Errors in language or grammar.

System Software

7. Software such as operating systems like Windows, Linux, or UNIX

Input

8. Describes the entry of data items into computer memory using hardware devices such as

keyboards and mice.

Input Symbol

9. Indicates an input operation and is represented by a parallelogram in flowcharts.

Input & Output

10. Represented by a parallelogram in flowcharts.

processing

11. Data, Items

Process Symbol

12. May involve organizing them, checking them for accuracy, or performing calculations with them.

CPU

13. Represents a processing operation and is represented by a rectangle in flowcharts.

Permanent Storage

14. The hardware component that processes data.

Output Symbol

15. Describes the operation of retrieving information from memory and sending it to a device, such as

Programming Language

- a monitor or printer, so people can view, interpret, and use the results.

Programming Language

16. Used to write computer instructions called program code; used to write programs.

Syntax

17. Also includes languages such as Visual Basic, C#, C++, Java.

18. Grammar rules of a language.

Syntax Error

19. Errors in language or grammar.

RAM

20. The temporary, internal storage within a computer. Computer Memory

Volatile Memory

21. Describes storage whose contents are retained when power is lost. Non Volatile

Logical Error

22. Translates a high-level language into machine language and tells you if you have used a

Variable

- programming language incorrectly. Compiler / Interpreter

23. Errors in program logic produce incorrect output

24. A named memory location whose value can vary.

25. People who benefit from using computer programs. Users / End Users

- ~~DOCUMENTATION~~ 26. Consists of all the supporting paperwork for a program.
- ~~LOGIC CHECKING~~ 27. The sequence of steps necessary to solve any problem.
- ~~PROGRAMMING~~ 28. The process of walking through a program's logic on paper.
- ~~LOGICAL ERROR TEST~~ 29. The act of writing programming language instructions. ~~coding the program~~
- ~~DEBUGGING~~ 30. When instructions are performed in the wrong order, too many times, or not at all. ~~Logical Error~~
- ~~CONVERSION~~ 31. Errors in program logic produce incorrect output ~~logical error~~
- ~~MAINTAINANCE~~ 32. Execute the program with some sample data to see whether the results are logically correct
33. What is the process of finding and correcting program errors?
34. The entire set of actions an organization must take to switch over to using a new program or set of programs
35. Consists of all the improvements and corrections made to a program after it is in production.

PART 2: Enumeration

- a. 3 major components of a computer system?
- b. 3 major computer hardware operations.
- c. 4 most common planning tools.
- d. 3 most common flowchart symbols.
- e. 7 steps on a program development life cycle.
 - a. ~~hardware, software~~
 - b. ~~Input output~~



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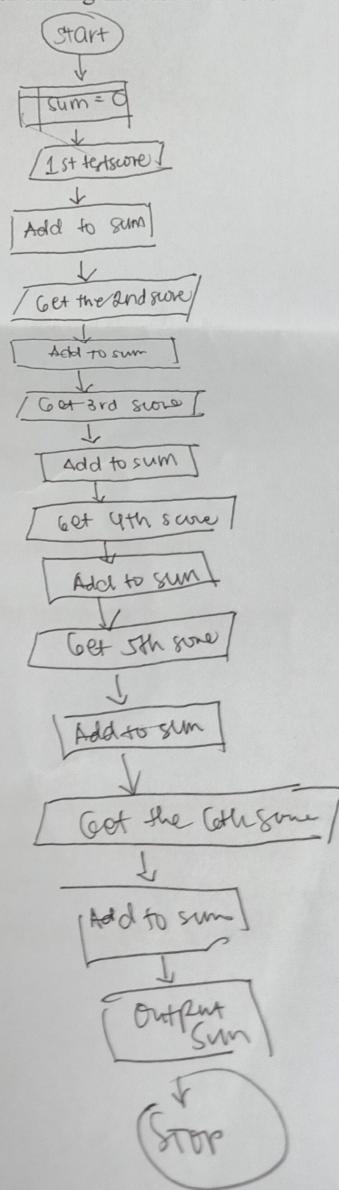
DATE: _____

Exercise 1. Design an algorithm and the corresponding flowchart for adding the test scores as given below: 85, 65, 78, 52, 98, 83

a) Algorithm

1. Start
2. Sum = 0
3. Get the first testscore
4. Add first testscore to sum
5. Get the second testscore
6. Add first test score to sum
7. Get the third testscore
8. Add to sum
9. Get the fourth score
10. Add the fourth test score to sum. Add to sum
11. Get the fifth test score
12. Add the fifth test score to the sum
13. Get the sixth test score to
14. Add the sixth test score to the sum
15. Output the sum
16. Stop

b) Draw the corresponding flowchart of the above algorithm





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Flowcharting Exercises

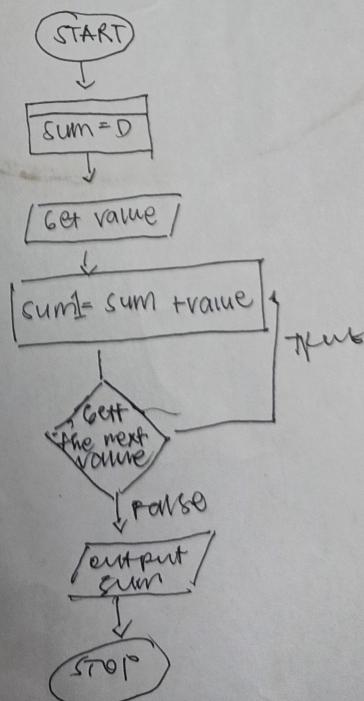
Exercise 2: The problem with the algorithm from Exercise 1 is that, some of the steps appear more than once, i.e. step 5 get second number, step 7, get third number, etc.

One could shorten the algorithm as follows:

1. Start
2. Sum = 0
3. Get a value
4. sum = sum + value
5. Go to step 3 to get next Value
6. Output the sum
7. Stop

This algorithm and its corresponding flowchart are a bit shorter than the first one. In this algorithm, step 3 to 5 will be repeated, where a number is obtained and added to sum. Similarly, the flowchart indicates a flow line being drawn back to the previous step indicating that the portion of the flowchart is being repeated.

Draw the corresponding flowchart of the above algorithm.





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Flowcharting Exercises

Exercise 3: From the exercise 2, one problem indicates that these steps will be repeated endlessly, resulting in an **endless** algorithm or flowchart.

The algorithm needs to be improved to eliminate this problem. In order to solve this problem, we need to add a last value to the list of numbers given. This value should be unique so that, each time we get a value, we test the value to see if we have reached the last value.

In this way our algorithm will be a finite algorithm which ends in a finite number of steps as shown below. There are many ways of making the algorithm finite.

The new list of numbers will be 10, 20, 300, 4000, 50000, 1, -1. The value -1 is a unique number since all other numbers are positive.

1. Start
2. Sum = 0
3. Get a value
4. If the value is equal to -1, go to step 7
5. Add to sum (sum = sum + value)
6. Go to step 3 to get next Value
7. Output the sum
8. Stop

Draw the corresponding flowchart of the above algorithm.

