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Submitted to

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Subject

Introduction to computer
programming. (Theory)

Module

12th

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Q1:- @ Design an algorithm and draw a flow chart that will read the two sides of a rectangle and calculate its area.

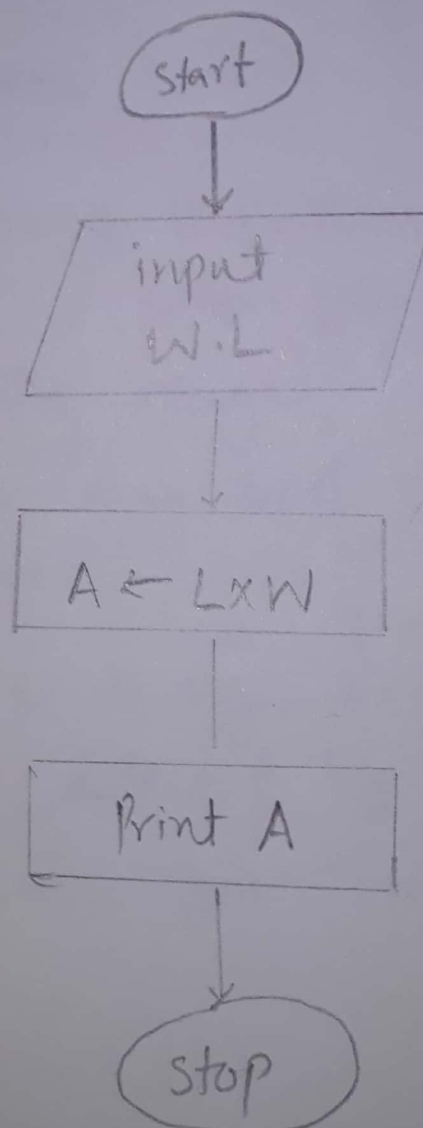
Algorithm :-

Step 1: input W, L

Step 2: $A \leftarrow L \times W$

Step 3: print A

Flow Chart



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(b). Name different types of errors which can occur during execution of a program

Ans:- There are three general type of errors:

① Syntax errors

② Runtime errors

③ Logic errors

① Syntax errors :- ① Syntax errors are "grammatical" errors and are deleted

when you compile the program

② Syntax errors prevent your program from executing

② Runtime errors :- ① Runtime errors occur when you tell the computer to do something illegal.

② Runtime errors may halt execution of your program.

③ Logic errors :- ① Logic errors are not detected by the computer.

② Logic error cause your results to be wrong.

Q2: (a) Design an algorithm that read two values, determine the largest value and prints the largest value with an identifying message.

Algorithm:

Step 1 :- Input VALUE1, VALUE2

Step 2 :- if (VALUE1 > VALUE2) then

MAX ← VALUE1

else

MAX ← VALUE2

endif

Step 3 :- Print "The largest value is, "MAX"

Q: What do you understand by the term "maintain and update the program".

Ans: Maintain and update the program. Maintenance and update are the modification of a software product after delivery to correct faults to improve performance or other attributes, or to adapt the product to a modified environment.

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- ① Software maintenance is a part of software development life cycle. its main purpose is to modify and update software application after delivery faults and to improve performance. when the real world changes the software requires alteration where ever possible.
- ② An update is new improved, or fixed software which replaces older versions of the same software. For example, updating your operating system bring it up-to date with the latest drivers, system utilities and security software. updates are often provided by the software publisher free of additional charge.

Q3:- Differentiate b/w the following.

(a): Bug and Debug ?

Bug

① In a computer program that produces an incorrect or unexpected result or cause it to behave in

Debug.

② Debugging is the process of locating and fixing error in ~~about~~ a computer, or hardware device.

Bug

unintended ways

- ⊙ Most bugs arise from mistakes and errors made by people in either a program's source code or its design and a few are caused by compilers producing incorrect code

Debug

- ⊙ Debugging is a necessary process in almost any new software or hardware development process whether ~~develop~~ a commercial product an enterprise, or personal application program.

(b) Syntax error and Logical error

Syntax error

A syntax error is an error in the syntax of a sequence of characters or tokens that is intended to be written in particular programming language

- ⊙ it occurs due to fault in the program syntax.
- ⊙ In compiled language the compiler indicates the syntax error with the location and what the error is.

Logical error

Logical error is an error in a program that causes it to operate incorrectly but not to terminate abnormally.

- ⊙ A logical error occurs due to a fault in the algorithm.
- ⊙ The programmer has to detect the error by himself.
- ⊙ it is comparatively difficult to identify

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⊙ it is easier to identify a syntax error

identify a logical error.

(c) compiler and Assembler

Compiler

- ⊙ Software that converts programs written in a high level language into machine language.
- ⊙ Converts the whole high level language program to machine language at a time
- ⊙ once compiled runs quickly but compiling can take a long time
- ⊙ Used by C++, C

Assembler

- ⊙ Software that converts programs written in assembly language into machine language.
- ⊙ convert assembly language program to machine language.
- ⊙ Run quickly as conversation b/w two low level languages is just reliant on the processor's instruction set.
- ⊙ used by assembly language

① System software and System software

- ① System software is used for operating computer hardware.
- ② System softwares are installed on the computer when operating system is installed.
- ③ In general, the user does not interact with system software because it works in the background.
- ④ system software can run independently. it provides platform for running application software
- ⑤ some example of system softwares are compiler, assembler, debugger, driver etc.

Application software.

Application software

- ① Application software is used by user to perform specific task.
- ② Application softwares are installed according to user's requirements.
- ③ In general, the user interacts with application softwares.
- ④ Application softwares can not run independently. They can not run without the presence of system software.
- ⑤ some example of application softwares are word processor, web browser, media player etc.

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(E): Low level language and High level language.

Low level language

- ① Low level language are very close to CPU
- ② programs in low-level languages are fast in execution.
- ③ programs in low-level languages are difficult to modify.
- ④ Low level languages provide facility to interact at hardware level

High level language

- ① High level languages are easy to learn.
- ② programs in high level languages are slow in execution.
- ③ programs in high level languages are easy to modify.
- ④ High level languages do not provide much facility to interact at hardware level.