

Strong Tower Academy

Class SSS2

Subject Computer Studies

Teacher Mr Omotoye

TOPIC: **PROGRAM DEVELOPMENT**

OBJECTIVES: At the end of the lesson, students should be able to:-

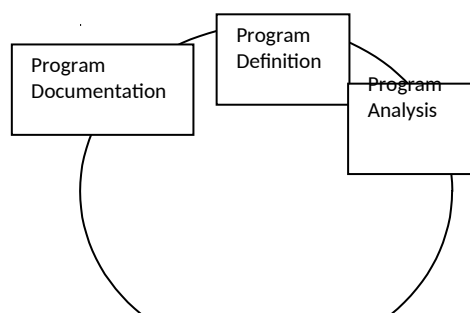
- (i) define Program Development Life Cycle
- (ii) sketch PDLC
- (iii) list steps involved in Program development
- (iv) explain the following steps in program development
 1. program definition
 2. problem analysis
 3. flowcharting
 4. program coding
 5. Program compilation
 6. Program debugging
 7. Desk checking
 8. Program documentation
- (v) Explain the term interpreted programs and compiled programs

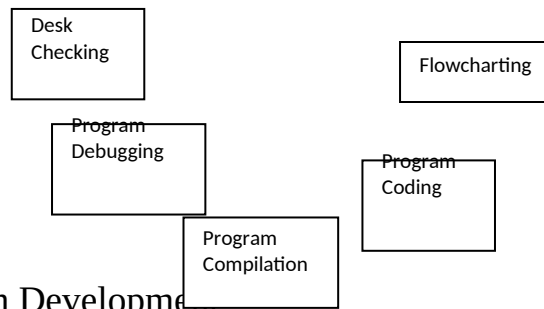
CONTENT:

Definition of Program Development Life Cycle

When programmers build software applications, they follow an organised plan or methodology that breaks the process into a series of tasks. The program development life cycle is an outline of each of the steps used to build software application.

Sketch of PDLC





Steps involved in Program Development

1. Program Definition
2. Program Analysis
3. Flowcharting
4. Program Coding
5. Program Compilation
6. Program Debugging
7. Desk Checking
8. Program Documentation

Step 1 :Program Definition

Precisely define the problem to be solved and write program specifications – describe the programs inputs, processing and outputs

Step 2: Problem Analysis

Analyse the problem and choose the best alternative solution to the problem.

Step 3: Flowchart

A flowchart is a pictorial representation of an algorithm.

Step 4: Program Coding

Programmers use a specific programming language to write lines of code. These lines of codes are known as source code. Source code is the collection of instructions written using human-readable computer language as text.

Step 5: Program compilation

It is a process of translating the source code to machine code or executable code or object code. There are three types of translators: Assembler, Compiler and Interpreter.

An interpreter translates high level language to machine code and executes it on the fly when the program is run.

A compiler translates the source code in advance to machine code that it stores as executable files

Step 6: Program Debugging

It is the process of removing bugs(errors) from computer programs. An error in a program is known as bug and the process of fixing bugs is debugging. There are three types of errors: Syntax, Runtime and semantic errors

Syntax errors: are mistakes in the way that the code is written. Common syntax errors include spelling mistakes, incorrect use of punctuation and the use of capital letters

Runtime error: It causes the program to crash even if there appears to be nothing wrong with the program code. e.g. running out of memory

Semantic error: the program is working fine but it produces result from what is expected. The result of $(2+3)*5$ is different from $2 + 3*5$

Step 7: Desk Checking

It is the process of looking at lines of code one by one to see if they have been written correctly and the logic is correct. Desk checking is also called tracing. The walkthrough is when a group of people do a desk check.

Step 8: Program Documentation

They are written text that accompanies computer software. It explains either

1. How to install the program
2. How the program operates
3. How to use the program

Interpreted and compiled programs

Interpreted programs

They are programs that execute the line of code one by one using an interpreter.
e.g. HTML, Python, Perl, etc.

The advantage of interpreted programs is that, it is easier to learn as you can write a line of codes and immediately test it to make sure it works.

The disadvantage of interpreted programs is that these programs run slower

Compiled programs

They are programs that execute the entire program at one time. e.g. VB, C*, Java, C++, etc. These programs run faster but require a programmer to write the entire program to test a section.

ASSIGNMENT:

Java is a high level language. It is an interpreted as well as compiled language.
Explain.