**Programming Practices & Techniques**

**1.  The Programming Process**

New Words: end = information, debugging = remove error, DPI = dot per inch,

1. What is computer program?

Ans. **A computer program consists of a group of instructions for a computer that cause it to perform a desired task.** On the other way, we can say, the computer program is a means to an end. The end will normally be defined as information that is needed to solve a problem.

1. **What do you know about programming process?**

**Or what is the programming process?**

**Or programming process.**

**Or what is the programming process and its activities?**

Ans. The programming process is a problem solving process, and it consists of the following activities:

* Defining the problem
* Preparing an algorithm.
* Preparing a program flowchart.
* Coding a program.
* Debugging and testing.
* Documenting.

1. **Draw the Programing process.**
2. What is input and output device?

Ans. An input device sends information to a computer system for processing, and an output device reproduces or displays the results of that processing. Keyboard, mouse are input device and monitor, projector, speakers are output device.

1. What is documenting and its type?

Ans. The process of preparing documentation is called documenting or keeping a written record of what is done. There are two types documenting.

* **Technical documenting-** The process of preparing documentation for developer.
* **End user documenting**- The process of preparing documentation for end user. End user documentation is also called user manual.

1. What is Documentation?

Ans. Documentation is a set of documents provided on paper, or online, or on digital or analog media, such as audio tape or CDs. Examples are user guides, white papers, on-line help, quick-reference guides,

1. What is Problem?

Ans. A statement of the desired output (result to be produced by the program), which usually be provided to the programmer

1. What is looping?

Ans. Looping refers to performing a set of operations repeatedly.

1. What role does a programmer play regarding computer program?
2. Who is a Systems Analyst?
3. What do you mean by POSITIVE, NEGATIVE and ZERO numbers?
4. What do you mean by Algorithm?

Ans. In programming, algorithm is the **set of well-defined instruction** in sequence to solve a program. An algorithm should always have a clear stopping point.

The words ‘algorithm’ and ‘algorism’ come from the name **Muhammad ibn Musa al-Khwarizmi**. He was a Persian mathematician, astronomer, geographer, and scholar.

1. What is a counter?

Ans. A counter is a device for keeping track of the number of times something occurs

1. What do you mean by an Execution-time-error?
2. What do you know about Desk-checking an Algorithm?
3. **What is a Flowchart? Why do we use it?**
4. **What is compiler?**
5. **What is assembling language?**
6. Where do we use terminal outlines?
7. Name some programming language?

Ans. BASIC: Beginner’s All-purpose Symbolic Instruction Code

COBOL: Common Business Oriented language.

FORTRAN: FORmula TRANslator

Pascal: a general purpose language.

RPG: Report Program Generator.

1. What are the general types of programming language?

Ans. Machine **language** is the binary **language** made of 1s and 0s. Assembly is made of abbreviated commands we can assemble into machine code. And high-level **language** is a lot like English and is computer independent. Some famous high-level **languages** are FORTRAN, COBOL, C++, BASIC, and Java.

1. **What is binary?**

**Ans.** **Binary as number**: a representation of numbers using only two digits (0 and 1)**. Binary as code**: the digital representation of text and data.

**Binary file**: composed of something other than human-readable text Executable, a type of binary file that contains machine code for the computer to execute.

**Binary as image:** a digital image that has only two possible values for each pixel

1. **What is branch?**
2. **What is bug?**

**Ans.** A software bug is an error, flaw, failure or fault in a computer program or system that causes it to produce an incorrect or unexpected result, or to behave in unintended ways.

Most bugs arise from mistakes and errors made in either a program's source code or its design, or in components and operating systems used by such programs. A few are caused by compilers producing incorrect code. A program that contains a large number of bugs, and/or bugs that seriously interfere with its functionality, is said to be buggy (defective).

1. **What is character?**
2. **What is coding?**
3. **What is debugging?**

**Ans.** Debugging is the process of finding and resolving of defects that prevent correct operation of computer software or a system.

1. **What is desk checking?**

**Ans.** Desk checking is a manual (non computerised) technique for checking the logic of an algorithm. The person performing the desk check effectively acts as the computer, using pen and paper to record results. The desk checker *carefully* follows the algorithm being careful to rigidly adhere to the logic specified. The desk check can expose problems with the algorithm.

**See details from Here:** [**https://sites.google.com/a/campioncollege.com/it\_eveningschoool/problem-solving-and-programming/desk-check-guide**](https://sites.google.com/a/campioncollege.com/it_eveningschoool/problem-solving-and-programming/desk-check-guide)

1. **What is detail line?**
2. **What is EOF?**
3. **What is execute?**

**Ans.** Execution in computer and software engineering is the process by which a computer or a virtual machine performs the instructions of a computer program. The instructions in the program trigger sequences of simple actions on the executing machine. Those actions produce effects according to the semantics of the instructions in the program.

Programs for a computer may execute in a batch process without human interaction, or a user may type commands in an interactive session of an interpreter. In this case the "commands" are simply programs, whose execution is chained together.

1. **What is execution-time error?**

**Ans. An error that occurs while a program is being executed.**

1. **What is field?**
2. **What is file?**
3. **What is high-level language?**

**Ans. See chapter-1, page-13, 2nd paragraph from bottom**

1. **What is increment?**

**Ans.** adding one into certain variable or objects for increasing it’s weight when a specific condition becomes true.

1. Define item.
2. Define listing.
3. Define logic error.

Ans. In computer programming, a **logic error** is a bug in a program that causes it to operate incorrectly, but not to terminate abnormally (or crash). A **logic error** produces unintended or undesired output or other behavior, although it may not immediately be recognized as such.

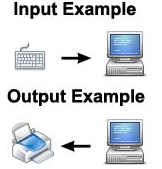
1. Define memory.

Ans. **Computer memory** is any physical device capable of storing information temporarily or permanently. For example, Random Access **Memory** (RAM), is a volatile **memory** that stores information on an integrated circuit used by the operating system, software, and hardware.

1. Define object program.
2. Define input.

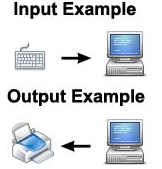
Ans. In computer science, the general meaning of input is to provide or give something to the computer, in other words the state/act of a computer, component of a computer or relevant device being accepting something from the user, from a device or from a piece of software either automatically or manually is called input.

Input is documented as the part of problem definition.



1. **Define output.**

Ans. Any information that has been processed by and sent out from a computer or similar device is considered output. A simple example of output is anything what you view on your computer monitor. The bottom half of the image to the right shows data being sent from a computer to a printer, which is considered output. That data is then printed onto a piece of paper, also considered a form of output.



1. Define program flowchart.
2. Define record.

Ans. A record is a collection of data that pertains to a particular entry in a file. Records are composed of fields, also called items.

1. Define run.
2. Define source program.
3. Define syntax error.

Ans. In computer science, a syntax error is an error in the syntax of a sequence of characters or tokens that is intended to be written in a particular programming language.

For compiled languages, syntax errors are detected at compile-time. A program will not compile until all syntax errors are corrected. For interpreted languages, however, a syntax error may be detected during program execution, and an interpreter's error messages might not differentiate syntax errors from errors of other kinds.

1. Define testing.

Ans. Software testing is an investigation conducted to provide stakeholders with information about the quality of the product or service under test.[1] Software testing can also provide an objective, independent view of the software to allow the business to appreciate and understand the risks of software implementation. Test techniques include the process of executing a program or application with the intent of finding software bugs (errors or other defects), and verifying that the software product is fit for use.

1. Define total line.
2. Define translation program.
3. Define system analyst.

Ans. The system analyst, the name of a position in a software firm or company, who plans the collection of equipment, programs, people and procedures that make up a system.

1. Define Programmer.

Ans. The person who writes the program is called programmer.

1. What are the capabilities of computer?

Ans. See chapter -1 page 6 last 4 points.

1. Count positive, negative , zero:

Ans. import java.util.Scanner;

public class JavaProgram

{ public static void main(String args[])

{ int countp=0, countn=0, countz=0, i;

int arr[] = new int[10];

Scanner scan = new Scanner(System.in);

System.out.print("Enter 10 Numbers : ");

for(i=0; i<10; i++) {

arr[i] = scan.nextInt();

}

for(i=0; i<10; i++)

{ if(arr[i] < 0) {

countn++;

} else if(arr[i] == 0)

{

countz++;

} else {

countp++;

}

}

System.out.print(countp + " Positive Numbers");

System.out.print("\n" + countn + " Negative Numbers");

System.out.print("\n" + countz + " Zero");

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