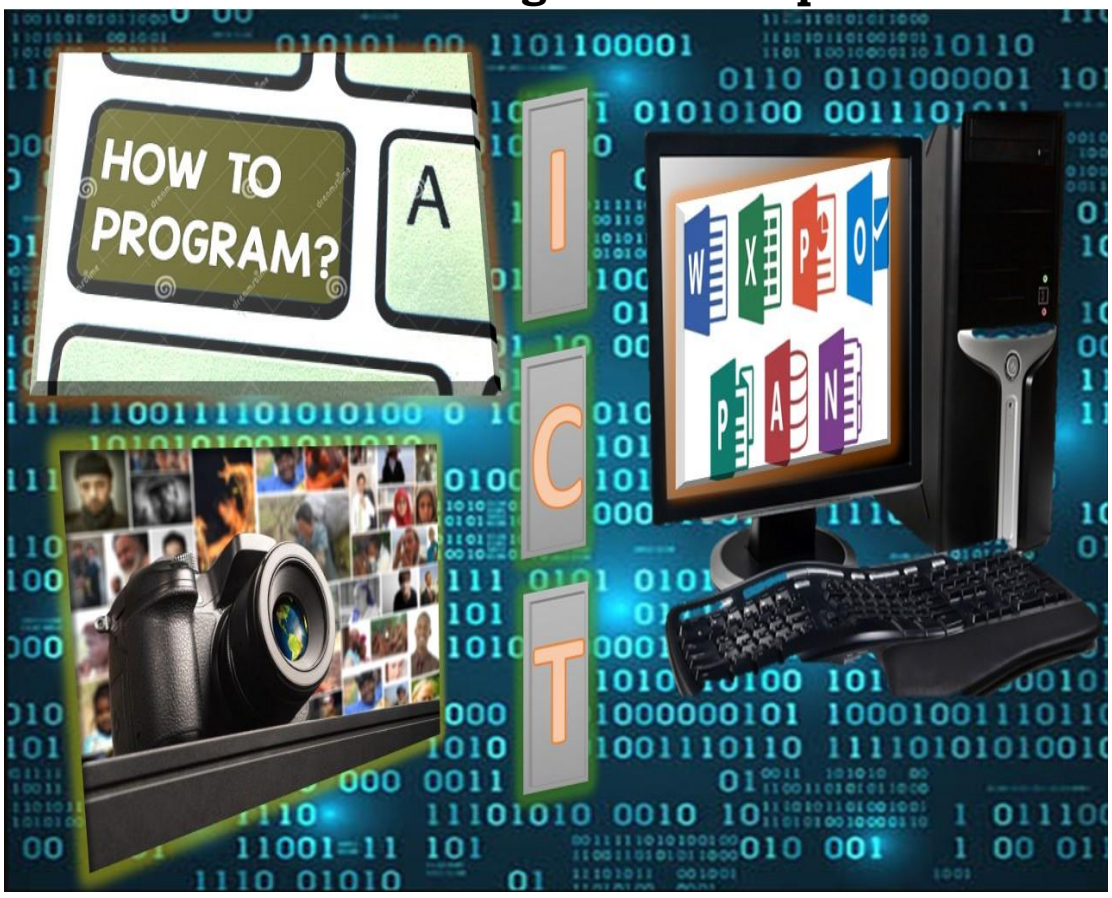
9

DepED
DEPARTMENT OF EDUCATION

ICT 9 Activity Sheet
Quarter 3 | Week 1

Process of Program Development



MARICAR R. PORNEL, *Oton NHS*
ZALDY M. TONDO, *Division Science Coordinator*
WRITERS

Introductory Message

Welcome to ICT 9!

The **Learning Activity Sheet** is self-directed instructional materials aimed to guide the learners in accomplishing activities at their own pace and time using the contextualized resources in the community. This will also assist the learners in acquiring the lifelong learning skills, knowledge and attitudes for productivity and employment.

For learning facilitator:

The **ICT 9 Activity Sheet** will help you facilitate the leaching-learning activities specified in each Most Essential Learning Competency (MELC) with minimal or no face-to-face encounter between you and learner. This will be made available to the learners with the references/links to ease the independent learning.

For the learner:

The **ICT 9 Activity Sheet** is developed to help you continue learning even if you are not in school. This learning material provides you with meaningful and engaging activities for independent learning. Being an active learner, carefully read and understand the instructions then perform the activities and answer the assessments. This will be returned to your facilitator on the agreed schedule.

Name of Learner:_____ **Grade and Section:**_____
School:_____ **Date:** _____

ICT 9 ACTIVITY SHEET
Process of Program Development

Learning Competency:

Analyze the dimensions of a problem using an iterative approach in development and debugging.

Support Competencies:
1. Identify the steps in the program development process.

Background information for the learners

Program Development Life Cycle (PDLC) is a systematic way of developing quality software. It provides an organized plan for breaking down the task of program development into manageable chunks, each of which must be successfully completed before moving on to the next phase.

In this lesson, you will learn about the different steps involved in the program development process.

Activity 1.

The program development process is divided into the steps discussed below:

1. Defining the Problem
   - The first step is to define the problem.
   - The *program specification* defines a) data used in program, b) processing that should take place while finding a solution, c) format of the output and the user interface.

2. Designing the Program
   - Program design starts by focusing on the main goal that the program is trying to achieve and then breaking the program into manageable components. This approach of program design is called *top-bottom program design* or *modular programming*.
   - Top-bottom program design involve a) identifying *main routine*, which is the one of program's major activity, b) divide the various components of the main routine into smaller parts called *modules*.
   - A program design tool is used to visualize how each module will do its assign job.

     Program Design Tools include:
     a) Algorithm
     b) Flowcharts
     c) Pseudocode - is a plain language description of the steps in an algorithm. Pseudocode often uses structural conventions of a normal programming language, but is intended for human reading rather than machine reading.

3. Coding the Program
    - Coding the program means translating an algorithm into specific programming language such as Java, C++, Phyton, Java Script, C, and other languages.
    - The technique of programming using only well-defined control structures is known as *Structured programming*.
    - Programmer must follow the language rules, violation of any rule causes *error*. These errors must be eliminated before going to the next step.

4. Testing and Debugging the Program
    - After removal of *syntax errors*, the program will execute. However, the output of the program may not be correct. This is because of logical error in the program.
    - A *logical error* is a mistake that the programmer made while designing the solution to a problem. So, the programmer must find and correct logical errors by carefully examining the program output using *Test data*.
    - Syntax error and Logical error are collectively known as *Bugs*. The process of identifying errors and eliminating them is known as *Debugging*.

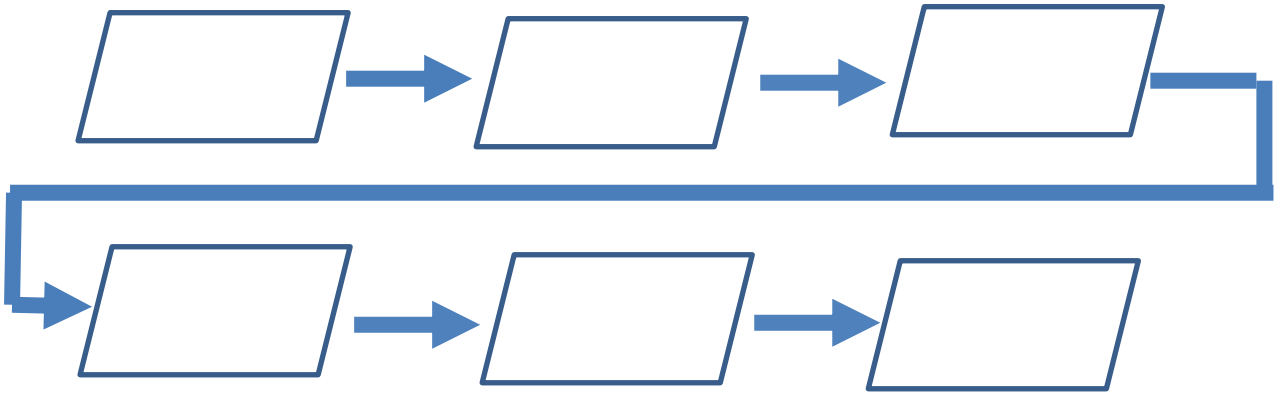
5. Documenting the Program

    After testing, the software project is almost complete.
    This phase ends by:

    a) writing a manual that provides an overview of the program's functionality,
    b) tutorials for the beginner, in-depth explanations of major program features, reference documentation of all program commands and a thorough description of the error messages generated by the program.

6. Deploying and Maintaining the Program
    - In this final phase, the program is deployed (installed) at the user's site.
    - Even after the software is completed, it needs to be maintained and evaluated regularly.
    - In software maintenance, the programming team fixes program errors and updates the software.

Copy the diagram and fill it with the different steps as to how program development is being process.



Activity 2.

Identify to which step of program development do the following processes belong. Write the letter of your choice. Write the answer in your pad paper.

A. Define the problem	C. Coding the program	E. Documenting the program
B. Designing the program	D. Testing and Debugging the program	F. Deploying and Maintaining the program

1. Writing of manual for the user to know the functionality of the program.
2. Identifying and eliminating program errors.
3. Determining what program design tool is used to visualize how each module will do its corresponding tasks.
4. Identifying what will be the data to be used and how it will be processed in order to find solution to the problem.
5. The program/software is now ready to be deployed at the user's site.
6. Identifying what programing language will be used for program coding.
7. Fix program errors and software updating.
8. Provide tutorial as to how the program will operate.

Activity 3.

Multiple choice. Select the ***letter*** of your choice.

1. The type of error made by programmer during program design is called____.
   a. Logical b. Syntax c. Run-time d. None of the above
2. What step in program development that allows the programmer to provide tutorial as to familiariaze with use the program or software.
   a. Coding b. Testing and Debugging c. Designing d. Documenting
3. Which of the following steps in program development does not belong to the group?
   a. Define the problem c. Run the Program
   b. Coding d. Deploying and maintenance
4. Program errors can be debug.
   a. True b. False
5. Which of the following is an example of program design tool?
   a. Algorithm b. Flowchart c. Psuedo code d. None of the above

Reflection.

Complete the statements below.

I understand_____
_____
I don't understand _____
_____
I need more information about _____
_____

Links and/or Other References

https://www.geeksforgeeks.org/software-engineering-program-development-life-cycle-pdlc
https://www.cseworldonline.com/articles/stages-of-program-development-process.php
https://www.edureka.co/blog/what-is-debugging/
https://www.javatpoint.com/programming-errors-in-debugging