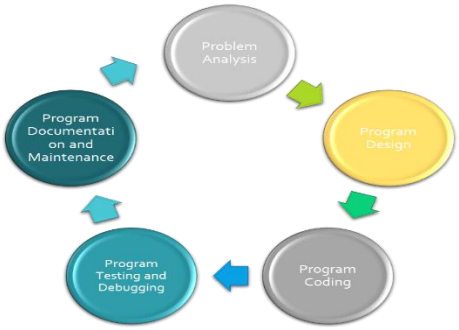
Programming Cycle

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



5 steps of the Programming Cycle

1. **Program Analysis** – careful study of the problem
2. **Program Design –** algorithm, pseudocode, flowchart
3. **Program Coding** – Programming language
4. **Program Testing and Debugging**
5. **Program Documentation and Maintenance**

1. Problem Analysis

- Methodical investigation of a problem and the separation of the problem into smaller related units for further detailed study.
- Steps:
    1. **Define the Problem and the users**
    2. **Determining the Desired Outputs**
    3. **Determining the Desired Inputs**
    4. **Determine the Desired Processing**
    5. **Double-Check the feasibility of implementing the program**
    6. **Document the Analysis**

1. Program Design

- Selecting the best method for solving the problem involves determining the sequence of processing steps within individual programs
- Steps:
  - ✓ **Determine the program logic using a top–down approach and modularization**
  - ✓ **Design details using algorithm, flowchart and Pseudocode**
  - ✓ **Do a structured walkthrough** – This is a method for examining a computer system, including its design and implementation in a systematic way.

2. Program Coding

- Programmer converts the steps depicted in the program flow chart into readable instructions that make up the actual program. Can be written at Machine or High Level Programming Languages.
- Steps:
  - ✓ **Select the Appropriate Programming Language. (Basic, C++, Visual Basic, Java)**
  - ✓ **Follow the Syntax**

Steps in Program Development

1. **State the problem clearly** — a problem cannot be solved correctly unless it is being understood.
2. **Plan and write the logical order of instructions** — the computer follows the direction exactly at the given sequence.
3. **Code the program into the computer** — write the programming statements in the desired language.
4. **Enter the program into the computer** — key in or type the statement into the computer.

Run and debug the program — check if you have the desired output; if not, trace the possible error.