Tishk International University
Faculty of Applied Science
Information Technology Department

Intro to the Course

Programming I

Lecture 1

Fall 2025

Course Code: IT117

Grade 1

Islam Abdulazeez
islam.abdulaziz@tiu.edu.iq

December 7, 2025

Islam A. Qader

Who am i?

Academic Background

Tishk International University

B.Sc. In Information Technology

University of Kurdistan Hewlêr

M.Sc. In Computer Science

Academic Experience

4 Years

Research Assistant
in IT Department

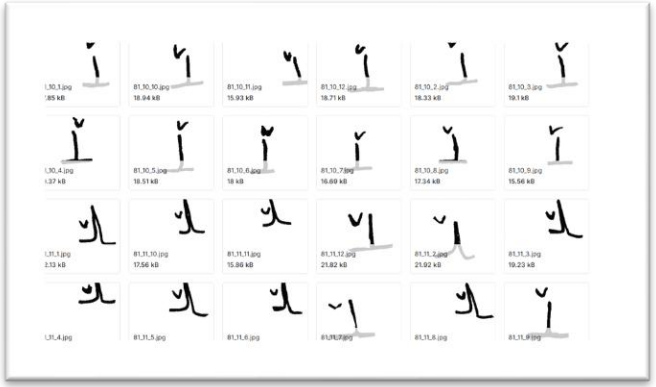
2 Years

Web Editor of
IT Department

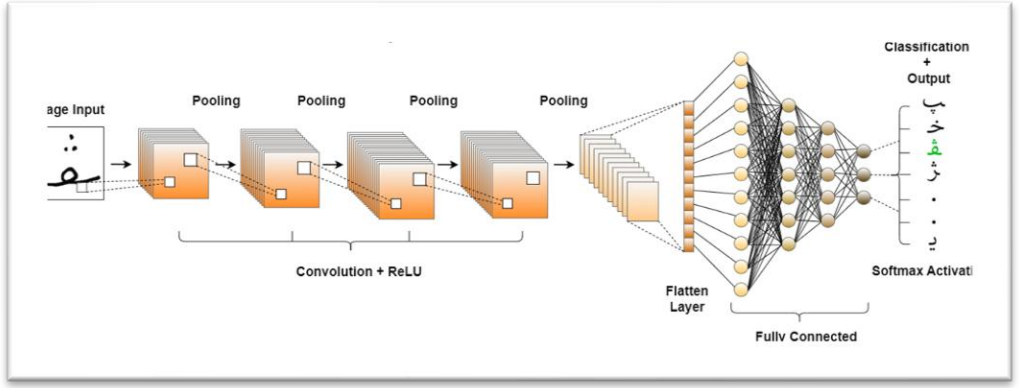
1 Year

Asst. Lecturer
Department Representative
Exam Committee Member

AI Contributions



Developed the first dataset for complete Kurdish handwriting characters and digits, containing 123,984 images.



Built an AI model to recognize complete Kurdish handwritten characters and digits

Continuous AI research to improve the project

Class Advisor

Contact Info

Email

islam.abdulaziz@tiu.edu.iq

Office Hours

Office No: 313 - Main Building

Office Hours: *Sun 14:20 PM - 15:30 PM*

Thu 15:20 PM - 17:00 PM

Overview

- ✓ Introduction to The Course
- ✓ Class Rules
- ✓ Course policy
- ✓ Syllabus
- ✓ Introduction to Programming
- ✓ Introduction to IDEs

About This Course

- Prerequisites

Programming I

Introductory knowledge of programming in Python

Programming II

Detailed programming concepts in Python

Algorithms & Data Structures

Core concepts of algorithms and data structures

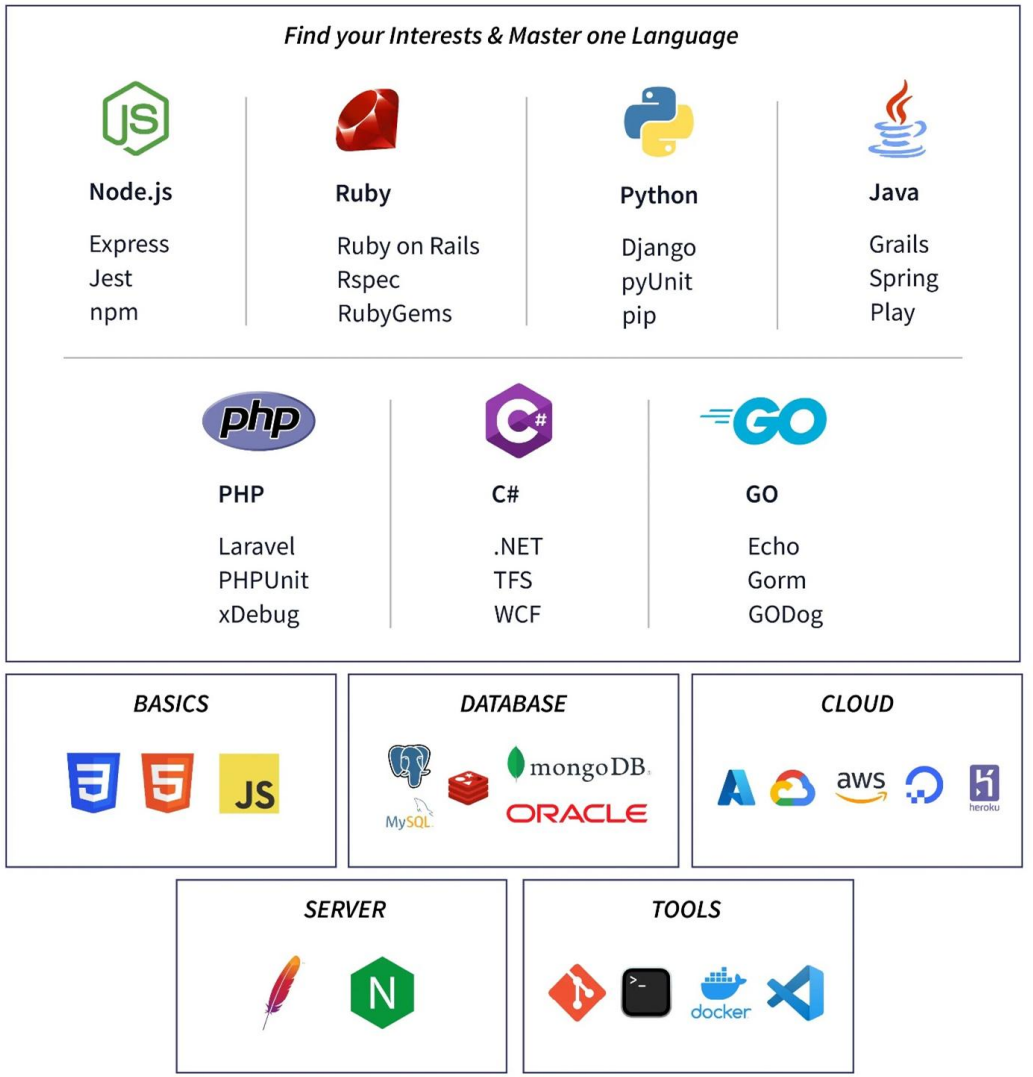
About This Course

What will you learn in this course?

- ✓ Essential programming concepts
- ✓ Flow charts
- ✓ Write simple programs

About This Course

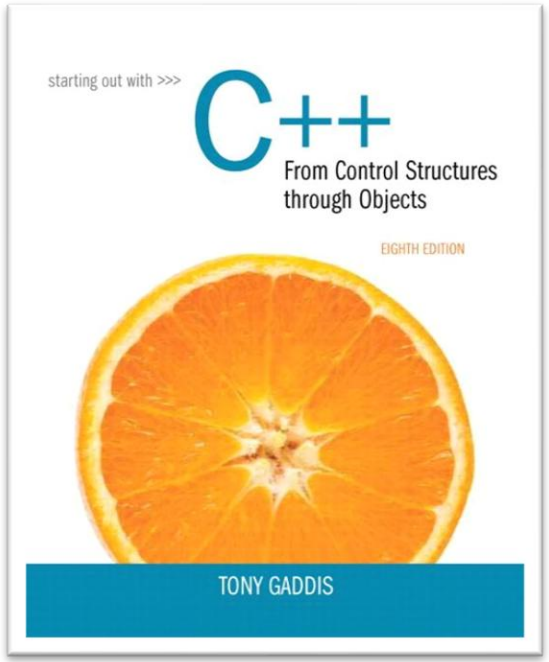
Note: You don't have to know any of them

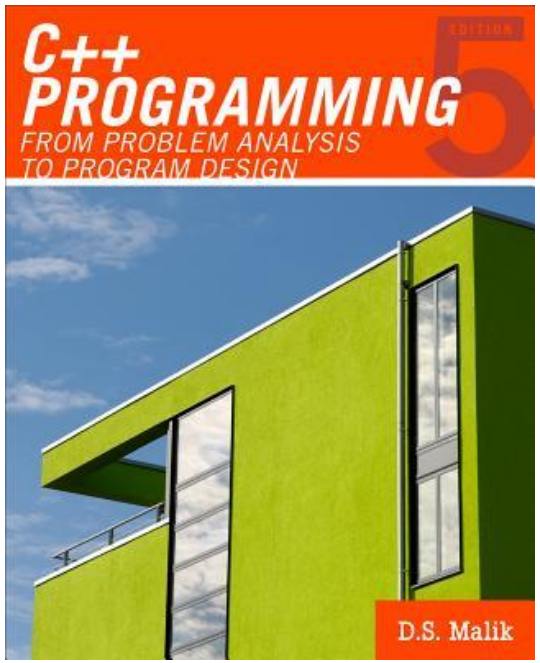


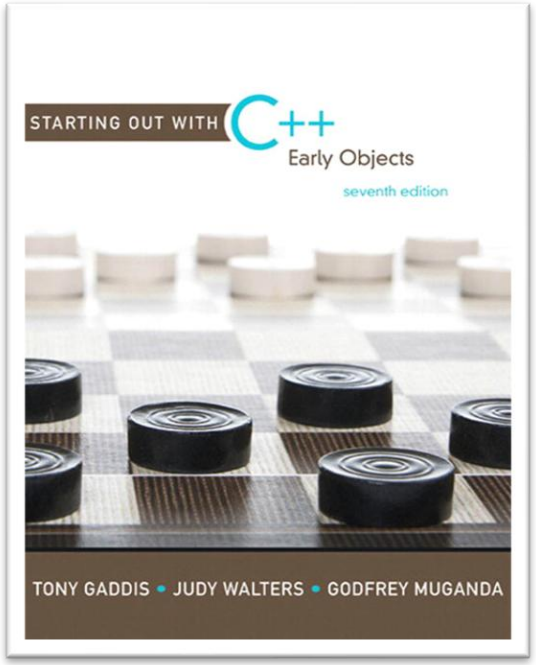
About This Course

Main Textbook Sources for This Course

- ✓ *Starting Out with C++: From Control Structures through Objects.*
- ✓ *C++ PROGRAMMING: From Problem Analysis to Program Design.*
- ✓ *Starting Out with C++ Early Objects*







About This Course

Online sources for this course:

1. **W3Schools**
2. **YouTube** Courses

About This Course

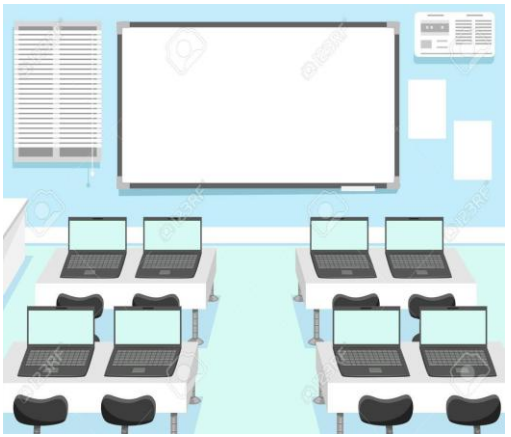
Class Structure

2 Hours Theoretical

in Class

2 Hours Practice

At Home



4 Hours Practice

in Lab

Class Rules

- Using cell phone is NOT allowed during the lecture. 
- Exams will cover all class and lab material. 
- Due dates for quizzes and projects will not be postponed. 
- Office hours are a valuable resource for you to utilize. 
- Raise your hand if you need to leave the classroom. 
- If you find any errors in my lecture notes or code, please bring it to my attention for a positive reward. 😊

Grading Criteria

Assessment Type	Quantity	Total Mark
Lab Exercises	10	10%
Quiz	3	15%
Project	1	10%
Midterm Exam (Theoretical and Practical)	1	25%
Final Exam (Practical)	1	40%

Course Policy

Attendance

I will fail if I don’t have 80%

Can you help me please?

NO 😭

Course Policy

Class Time

DBL ?

Don’t Be Late 🙃

- Be on time for the lecture.

Extra Grading

Extra marks can be earned by:

Google Classroom

ypf4ye53

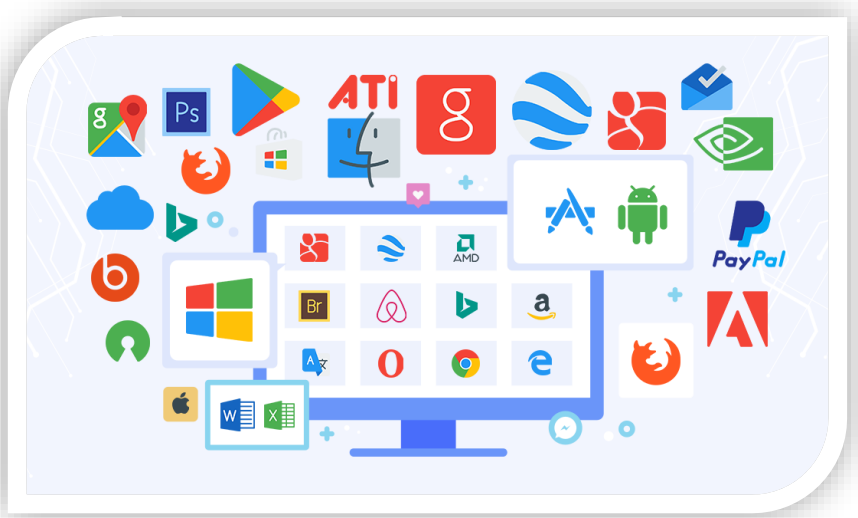
Programming I (Fall 2025)
Google Classroom

Syllabus

Introduction

➢ What is Computer Program?

A computer program is a set of instructions that tells the computer what to do.

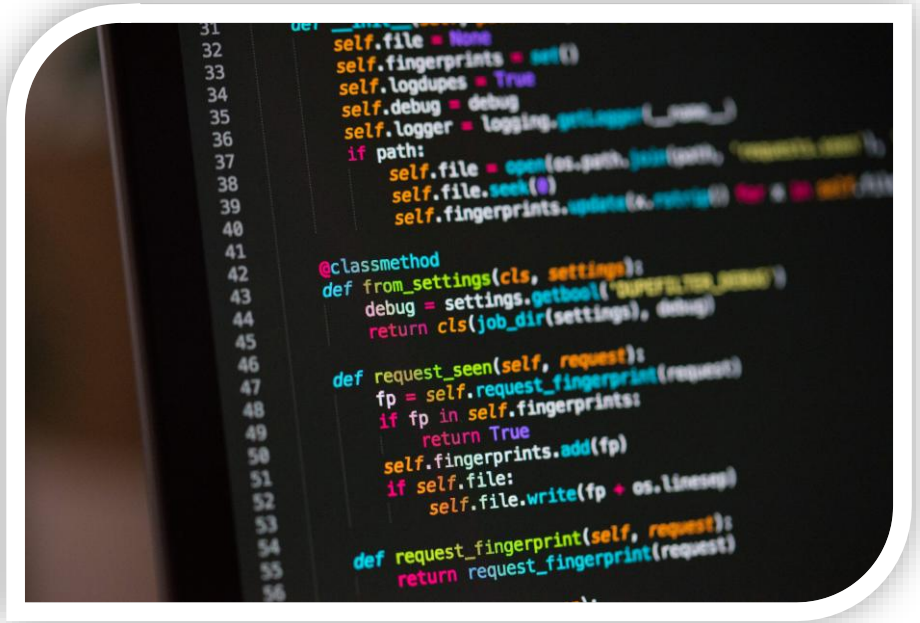


• Examples of Computer Programs

- A calculator app that adds and subtracts numbers.
- A web browser you use to open websites.
- A messaging app like WhatsApp or Telegram.

Introduction

- **What is Computer Programming?**
  - Computer Programming is the process of writing instructions for a computer to perform certain tasks or solve problems.
  - Instructions must be written in a way the computer can understand.
  - We use **programming languages** to write these instructions.



Why Learn Programming?

- **Programming is important because it allows us to:**

  - ✓ Solve Problems
  - ✓ Build Applications
  - ✓ Automate Tasks

Computer Programs

What are Programming Languages?

- Programming languages are the tools we use to write programs.
- They allow us to write instructions in a way the computer can understand.

Example of Programming Languages

- **C++:** Fast and powerful, commonly used for games and high-performance applications.
- **Java:** Used for Android apps, large systems, and enterprise applications.
- **Python:** Easy to learn, used for data science, AI, automation, and web apps.
- **JavaScript:** Runs in browsers, used to make websites interactive.
- **C#:** Used for Windows applications and game development with Unity.
- **PHP:** Used to build dynamic websites and backend systems.
- **Swift:** Used to create apps for iPhone and iPad.
- **SQL:** Used to store, retrieve, and manage data in databases.
- …

Syntax of Programming Languages

- The set of rules that define how you must write code so the computer can understand it.
- Each programming language has its own syntax **(rules and structure)** like any human language (ex. English) has different grammar and vocabulary.

Binary Code

- Computers only understand **binary code**.

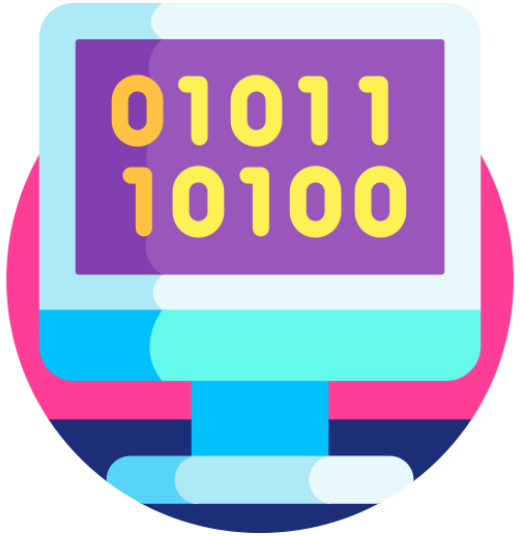
0110101101101011 1100000000110101 1011110100100100

1010010100100100 0010100100010011 1110100100010101

1110100100010101 0001110110000000 1110000111100000

0000100000000001 0100101101110100 0000001000101011

0010100101110000 0101001001001001 1010100110101000



Types of programming languages

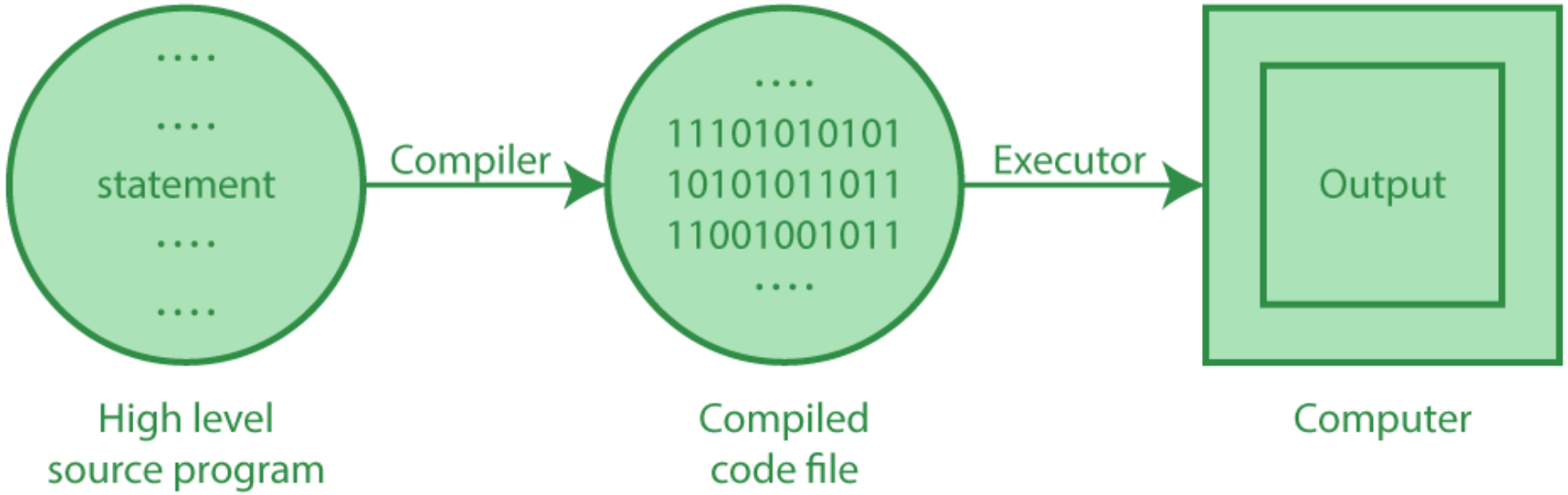
Two Main Types of Programming Languages

- **Low-level Programming Languages**
  i. Closer to the computer's machine code (binary)
  ii. Hard for humans to read
  iii. Examples: **Assembly language**, **Machine code**

- **High-level Programming Languages:**
  i. Easy for humans to read and write
  ii. Used for apps, websites, games, etc.
  iii. Examples: **Python**, **Java**, **C++**

Compilers and Interpreters

- Compiler

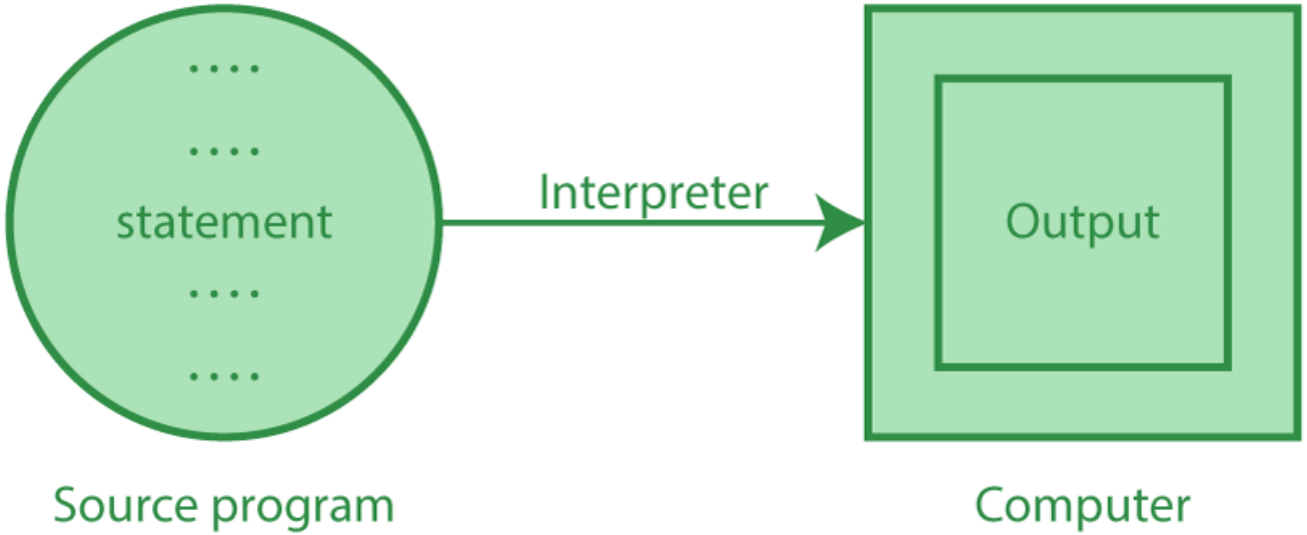


Compiler → Translates everything at once, then runs.

Examples → C, C++, Java

Compilers and Interpreters

- Interpreter



Interpreter → Translates and runs one line at a time.

Examples → Python, JavaScript, PHP.

Programming Objectives

- A program should solve a problem and should be:

1. **Correct:** It actually solves the problem
2. **Efficient:** Without wasting time or space
3. **Readable:** Understandable by another person
4. **User-friendly:** In a way that is easy for its user to use

How To Write a Computer Program?

Step 1 – Understand the Problem

Step 2 – Plan Your Solution

Step 3 – Choose a Programming Language

Step 4 – Write the Code

Step 5 – Run the Program

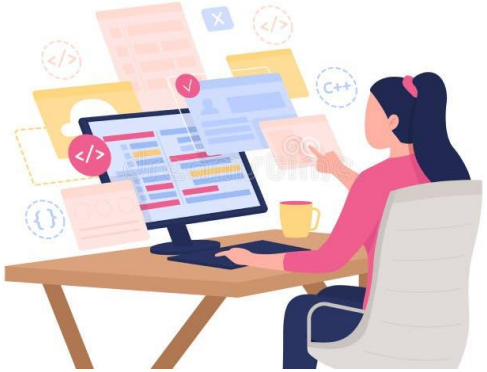
Step 6 – Test and debug the Program

Step 7 – Improve Your Code

How To Learn Programming?

The best way to learn how to program is to start by reading to understand the concepts and syntax, then

practice, **practice** and **practice**.



IDE (Integrated Development Environment)

- IDE is a software that provides tools for programmers to write, test, and debug code in one place
- It typically includes a code editor, a compiler or interpreter, and debugging tools.

➢ Some popular IDEs for C++:

Visual Studio

Xcode

CLion

IDE (Integrated Development Environment)

- Microsoft Visual Studio (Community Ed.)
  - Windows OS
- Xcode
  - macOS
- CLion
  - Linux OS

You can download **Microsoft Visual Studio Code** through

https://visualstudio.microsoft.com

Activities and Next Lecture's Topic

Activities

- Download an IDE (Visual Studio is recommended).
- Review this lecture note.

Next Lecture's Topic

- Introduction To C++

References

- GeeksforGeeks. (2022, August 18). What are the roles of Java compiler and interpreter? GeeksforGeeks. https://www.geeksforgeeks.org/java/what-are-the-roles-of-java-compiler-and-interpreter

Thank You!