Assignment#13

Part 1: Introduction to Programming

Instructions:

Research and answer the following in your own words:

1. What is programming?

The set of instructions given to the computer to perform a specific task.

1. Why is programming important in today's world?

To tell the computer what to do, how to do and when to do. It is the foundation of all modern technologies.

1. List at least 3 real-life applications of programming.

Online shopping websites

Mobile apps

Smart home appliances

1. What are programming languages? Mention at least 5 popular languages and one use case for each.

Tools for writing instructions that computer can understand are called programming languages.

5 popular languages are

1. Python\_data science and AI
2. JavaScript\_web development
3. Java\_android apps
4. C++\_game development
5. SQL\_database managemnet

Part 2: Introduction to Python

Instructions:

1. What is Python?

One of a powerful high level language also easy to understand.

1. Who developed Python and when?

Guido ve Rossom in 1991.

1. What are the main features of Python?

Easy to lean and understand.

Works for different plateforms like windows and lines etc.

Having huge libraries.

1. Mention at least 3 areas where Python is widely used (e.g., data science, web development).

Data science\_ analyze large datasets using pandas.

Web development\_builds web sites using Django or flask.

Artifical intelligence\_create AI models with tensorflow or pytorch.

5. What makes Python a beginner-friendly language?

Since it is a high level language that means it is close to human language that’s why it is easy to learn and understandwhich makes is beginner-friendly.

Part 3: Python IDEs

Instructions:

1. What is an IDE (Integrated Development Environment)?

A software tools to write ,test and debug code.

1. List at least 3 popular IDEs or code editors used for Python development (e.g., PyCharm, VS Code, Jupyter Notebook).

PyCharm

VS Code

Jupyter Notebook

3. Mention one advantage and one disadvantage of each IDE you listed.

PyCharm

Advantage

Smart code assistance.

Disadvantage

Heavy and slow on low-end PCs.

VS Code

Advantage

Light weight and fast.

Disadvantage

Need manual installation

Jupyter Notebook

Advantage

Perfect for learning and experiment

Disadvantage

Not ideal for full software development.

Part 4: Git and GitHub

Instructions:

1. What is Git?

**Git** is a **version control system**.  
It helps **track changes** in your code, **collaborate with others**, and **manage different versions** of your project safely and efficiently.

1. Why do developers use Git?

It helps **track changes** in your code, **collaborate with others**, and manage different versions of your project safely and efficiently.

1. What is GitHub?

**GitHub** is an **online platform** that hosts your code and uses **Git** for version control.It allows individuals and teams to **store, share, collaborate, and manage code** projects in the cloud.

1. What is the difference between Git and GitHub?

Git\_ tool to track and mange code on your computer.

GitHub \_website to store code online and share it with others.

1. How does GitHub help in collaboration?

It is build for teamwork--it allows team members to works on a same project from anywhere in the world without messing up each others work.

1. What is version control and why is it important in software development?

**Version Control** is a system that **tracks and manages changes** to your code or project over time.It allows you to **save versions**, **go back to earlier states**, and **work safely with a team**.

Part 5: Introduction to Google Colab

Instructions:

1. What is Google Colab?

It is a free and online cloud-based coding plateform from google.

1. How is Google Colab different from other IDEs?

No installation needed (runs in browser).

Access to **free GPUs/TPUs** for ML

Easy sharing like Google Docs.

1. What are its key features (e.g., free GPU access, cloud-based notebooks)?

Write and run python code

Cloud based

Large libraries

Free GPU access

Collaboration

Save to google drive

1. What are the common use cases of Google Colab, especially in machine learning or data analysis?

Because it is cloud-based ,beginner-friendly and gives free GPU access.

Submission Guidelines:

● Submit the assignment in a PDF or Word format.

● Write all answers in your own words