

## **Assignment Title: Introduction to Programming and Tools**

### **Objective:**

This assignment is designed to introduce students to the fundamental concepts of programming and commonly used development tools. By the end of this assignment, students will understand what programming is, what Python is used for, and the role of development tools like IDEs, Git, GitHub, and Google Colab.

## **Part 1: Introduction to Programming**

### **Instructions:**

Research and answer the following in your own words:

1. What is programming?
2. Why is programming important in today's world?
3. List at least 3 real-life applications of programming.
4. What are programming languages? Mention at least 5 popular languages and one use case for each.

## **Part 2: Introduction to Python**

### **Instructions:**

1. What is Python?
2. Who developed Python and when?
3. What are the main features of Python?
4. Mention at least 3 areas where Python is widely used (e.g., data science, web development).
5. What makes Python a beginner-friendly language?

## **Part 3: Python IDEs**

### **Instructions:**

1. What is an IDE (Integrated Development Environment)?
2. List at least 3 popular IDEs or code editors used for Python development (e.g., PyCharm, VS Code, Jupyter Notebook).
3. Mention one advantage and one disadvantage of each IDE you listed.

## **Part 4: Git and GitHub**

### **Instructions:**

1. What is Git?
2. Why do developers use Git?
3. What is GitHub?
4. What is the difference between Git and GitHub?
5. How does GitHub help in collaboration?
6. What is version control and why is it important in software development?

## **Part 5: Introduction to Google Colab**

### **Instructions:**

1. What is Google Colab?
2. How is Google Colab different from other IDEs?

3. What are its key features (e.g., free GPU access, cloud-based notebooks)?
4. What are the common use cases of Google Colab, especially in machine learning or data analysis?

**Submission Guidelines:**

- Submit the assignment in a PDF or Word format.
- Write all answers in your own words.