Weekly Progress Report

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Week Ending: 01

1. Introduction:

In this week, I learned about the basics of Python Programming language such as data types, loops, functions, conditional statements, OOPS concepts etc.

2.What is Python:

Definition:

- Python is a high-level, interpreted programming language which has highlighting features likes simple, open-source, and easy to understand.
- Python was invented by Guido van Rossum in 1991.

3. Data types of python:

- **List :** List is a heterogenous data type which consists of different types of data types .It is represented as [].It is mutable data type
  Syntax: var=[1,2.0,"Ajay"];
- **Tuple:** Tuple is similar to the list but the major difference is, the tuple is immutable. It is represented as ().
  Syntax: var=(1,2.0,"Ajay")
- **Dictionary:** Dictionary is a data type which stores the data in the form of key and values. It is represented as {key: value}
  Syntax: var={1:"Ajay"}
- **String:** String can defined as group of characters. It is represented in ' ' or " ".
  Syntax: var="Ajay"

4.Conditional Statements:

- **Overview:** Conditional statements in Python allow the execution of different code blocks based on certain conditions.

- **if Statement:** The if statement is used to execute a block of code if a condition is true.

1. **Syntax:** if(condition)

- **if-else Statement:** The if-else statement is used to execute one block of code if the condition is true and another block if it's false.
  Syntax: if(condition)……else….
- **if-elif-else Statement:** The if-elif-else statement allows checking multiple conditions and executing different blocks of code based on the first true condition encountered.

5.Loops:

- **Overview:** Loops in Python are used to execute a block of code repeatedly.
- **for Loop:** The for loop is used to iterate over a sequence (such as lists, tuples, or strings) or other iterable objects.
- **while Loop:** The while loop is used to execute a block of code as long as a condition is true.
- **Loop Control Statements:** Python provides break, continue, and pass statements to control the flow of loops.

6.Object-Oriented Programming (OOP) in Python:

- **Overview:** Object-oriented programming is a programming paradigm that uses objects and classes for designing and building applications.
- **Classes and Objects**: A class is a blueprint for creating objects, while an object is an instance of a class.
- **Attributes and Methods**: Attributes are data members of a class, and methods are functions defined within a class.
- **Inheritance**: Inheritance allows a class to inherit attributes and methods from another class.
- **Polymorphism**: Polymorphism enables a method to perform different actions based on the object it.
- **Encapsulation**: Encapsulation is the binding of data and methods that operate on the data within a single unit, i.e., a class.

7.Functions:

Overview: Functions are blocks of reusable code that perform a specific task. In Python, functions are defined using the def keyword.

Explanation: Functions can take parameters as input and return values as output. They help in organizing code, improving readability, and reusability.

Example:

```
def add(x, y):
   return x + y
result = add(3, 5)
print(result)
```

8.Next Week goals:

- Improving the practical experience
- Practicing more example on core python

9.Conclusion:

This report gives brief explanation about core python concepts such as data types, conditional statements, loops and advanced concepts like OOPS concepts such as class and objects, Abstraction, Encapsulation, Polymorphism and Inheritance.