Beginner's Guide to Learning Python

1. Introduction to Python

Python is a high-level, easy-to-read programming language used for web development, automation,

data analysis, machine learning, and more. Its simplicity makes it great for beginners.

2. Installing Python

Visit: https://www.python.org/downloads/

Download the latest version and follow the instructions.

Make sure to check "Add Python to PATH" during installation.

Check installation:

python --version

3. Running Python Code

Run Python in IDLE, VS Code, Terminal, or online platforms like Replit.

Example:

print("Hello, world!")

4. Variables and Data Types

age = 25

height = 5.9

name = "Alice"

is_student = True

fruits = ["apple", "banana", "cherry"]

5. Operators

```python
x = 10 + 5

print(x > 5)

print(True and False)
```

6. Control Flow

```python
# If/Else

if age >= 18:

    print("Adult")

else:

    print("Minor")



# Loops

for i in range(5):

    print(i)



count = 0

while count < 5:

    print(count)

    count += 1
```

7. Functions

```python
def greet(name):

    print("Hello, " + name + "!")

greet("Alice")



def add(a, b):

    return a + b
```

```python
print(add(3, 5))
```

8. Input and Output

```python
name = input("Enter your name: ")

print("Welcome, " + name + "!")
```

9. Simple Project: Calculator

```python
def calculator():

    a = float(input("Enter first number: "))

    b = float(input("Enter second number: "))

    op = input("Choose operation (+, -, *, /): ")

    if op == "+":

        print("Result:", a + b)

    elif op == "-":

        print("Result:", a - b)

    elif op == "*":

        print("Result:", a * b)

    elif op == "/":

        print("Result:", a / b)

    else:

        print("Invalid operation")
calculator()
```

10. What's Next?

- Learn about dictionaries, sets, tuples

- Explore file handling

- Try modules like math, random, and datetime

- Build more projects!

11. Lists, Tuples, and Dictionaries

```python
colors = ["red", "green", "blue"]

point = (3, 4)

person = {"name": "Alice", "age": 30}

print(person["name"])
```

12. Error Handling

```python
try:

    result = 10 / 0

except ZeroDivisionError:

    print("You can't divide by zero!")
```

13. Using Modules

```python
import math

print(math.sqrt(16))


import random

print(random.randint(1, 10))
```

14. Working with Files

```python
with open("sample.txt", "w") as f:

    f.write("Hello, file!")


with open("sample.txt", "r") as f:

    content = f.read()
```

```
    print(content)
```

15. Basic Object-Oriented Programming

```python
class Person:

    def __init__(self, name):

        self.name = name


    def greet(self):

        print("Hello, I am " + self.name)


p = Person("Alice")

p.greet()
```

16. Practice Exercises

- Create a number guessing game

- Build a to-do list app using lists

- Make a simple quiz using input() and scoring

- Write a program that counts vowels in a sentence