1. Study and Install Python in Eclipse and WAP for data types in Python.

To work with Python in Eclipse, you can use the PyDev plugin, which provides Python support in the Eclipse IDE. Here's a step-by-step guide on how to set up and install Python in Eclipse using the PyDev plugin:

Prerequisites:

- Make sure you have Eclipse IDE installed on your system. If not, you can download it from the official Eclipse website (https://www.eclipse.org/downloads/).
- Make sure you have Python installed on your computer. You can download Python from the official Python website (https://www.python.org/downloads/).

Installing PyDev Plugin:

1. Open Eclipse IDE.
2. Go to `Help` -> `Eclipse Marketplace`.
3. In the Eclipse Marketplace dialog, type "PyDev" in the search box.
4. Click the `Go` button.
5. Find the "PyDev - Python IDE for Eclipse" entry and click the `Install` button next to it.
6. Follow the installation wizard's instructions to complete the installation. You may need to accept the license agreement and restart Eclipse once the installation is complete.

Configuring Python Interpreter:

1. After installing the PyDev plugin and restarting Eclipse, go to `Window` -> `Preferences`.
2. In the Preferences window, expand the "PyDev" section and select "Interpreters - Python."
3. Click the "New..." button to add a new Python interpreter.
4. Browse and select the Python executable that you installed earlier (e.g., `python3` for Python 3.x).
5. Click the "OK" button to save the interpreter configuration.

Creating a Python Project:

1. To create a new Python project, go to `File` -> `New` -> `Project...`.
2. In the New Project dialog, expand the "PyDev" category and select "PyDev Project."
3. Click the "Next" button.
4. Enter the project name and configure other project settings as needed. Click the "Finish" button.

Writing Python Code:

1. In the newly created Python project, you can create Python source files (`.py` files) by right-clicking on the project, selecting `New` -> `File`, and giving it a `.py` extension.
2. You can now write Python code in these files using the Eclipse IDE.

Running Python Code:

1. To run a Python script, open the Python source file you want to execute.
2. Right-click within the Python file and select `Run As` -> `Python Run`.
3. You can also use the toolbar buttons to run or debug your Python code.

1b. WAP for data types in Python

```
# Integer
integer_variable = 42
print("Integer:", integer_variable)

# Float
float_variable = 3.14
print("Float:", float_variable)

# String
string_variable = "Hello, Python!"
print("String:", string_variable)

# Boolean
boolean_variable = True
print("Boolean:", boolean_variable)

# List
list_variable = [1, 2, 3, 4, 5]
print("List:", list_variable)

# Dictionary
dictionary_variable = {"name": "John", "age": 30, "city": "New York"}
print("Dictionary:", dictionary_variable)
```

2. Write a Program for arithmetic operation in Python

```
# Arithmetic Operations

# Addition
num1 = 10
num2 = 5
sum_result = num1 + num2
print("Addition:", sum_result)

# Subtraction
difference = num1 - num2
print("Subtraction:", difference)

# Multiplication
product = num1 * num2
print("Multiplication:", product)

# Division
quotient = num1 / num2
print("Division:", quotient)

# Integer Division (floor division)
floor_quotient = num1 // num2
print("Floor Division:", floor_quotient)

# Modulus (remainder)
remainder = num1 % num2
print("Modulus (Remainder):", remainder)

# Exponentiation
power = num1 ** num2
print("Exponentiation:", power)
```

3. Write a Program for looping statements in Python.

Using For loop:

```
# Get the number for which you want to print the multiplication table
number = int(input("Enter a number: "))

# Get the range (how many multiples you want to print)
range_limit = int(input("Enter the range (number of multiples to print): "))

print(f"Multiplication table for {number} up to {range_limit} multiples:")
for i in range(1, range_limit + 1):
    result = number * i
    print(f"{number} x {i} = {result}")
```

Using While loop:

```
# Get the number for which you want to print the multiplication table
number = int(input("Enter a number: "))

# Get the range (how many multiples you want to print)
range_limit = int(input("Enter the range (number of multiples to print): "))

# Initialize the iterator variable
i = 1

print(f"Multiplication table for {number} up to {range_limit} multiples:")
while i <= range_limit:
    result = number * i
    print(f"{number} x {i} = {result}")
    i += 1
```

Using Nested Loop

```
# Get the number of rows from the user
num_rows = int(input("Enter the number of rows: "))

# Outer loop for rows
for i in range(num_rows):
    # Inner loop for columns
    for j in range(i + 1):
        print("*", end=" ")
    # Move to the next line after printing a row
    print()
```