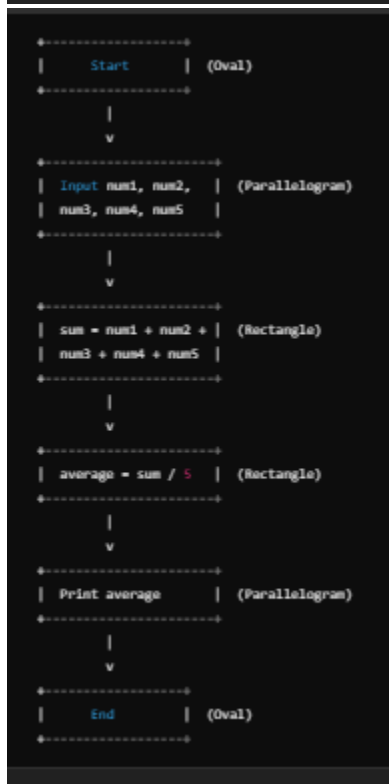


Short
4.

Algorithm to Input Five Numbers and Print the Average

1. Start
2. Input five numbers (num1 , num2 , num3 , num4 , num5).
3. Calculate the sum: `sum = num1 + num2 + num3 + num4 + num5` .
4. Compute the average: `average = sum / 5` .
5. Print the average.
6. End



```
# Input from user
num1 = float(input("Enter first number: "))
num2 = float(input("Enter second number: "))
num3 = float(input("Enter third number: "))
num4 = float(input("Enter fourth number: "))
num5 = float(input("Enter fifth number: "))

# Calculate sum and average
sum_numbers = num1 + num2 + num3 + num4 + num5
average = sum_numbers / 5

# Print the average
print(f"The average of the five numbers is: {average}")
```

Long answer

1. Explain the features of python language

1. Simple and Easy to Learn

- Python has a simple and readable syntax similar to the English language.
- It requires fewer lines of code compared to other programming languages like C, C++, or Java.

2. Interpreted Language

- Python does not require compilation like C or Java.
- The code is executed line by line by the Python interpreter, making debugging easier.

3. Dynamically Typed

- In Python, you don't need to declare variable types.
- The type of a variable is determined at runtime.

4. High-Level Language

- Python abstracts complex memory management and system details.
- It allows programmers to focus on logic rather than worrying about low-level operations.

5. Object-Oriented Language

- Python supports object-oriented programming (OOP), which allows code reuse and modular design.
- Concepts like classes and objects make Python powerful.

6. Extensive Standard Library

- Python has a vast collection of built-in libraries for various tasks like web development, data handling, and scientific computing.
- Examples: `math`, `datetime`, `random`, `os`, `re`, `json`, etc.

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7. Open Source and Community Support

- Python is free to use and has a strong developer community.
- It is maintained by a large number of contributors worldwide.

8. Cross-Platform Compatibility

- Python code runs on multiple operating systems like Windows, macOS, and Linux without modification.
- It is portable and can be used across different environments.

9. Multi-Paradigm Support

- Python supports different programming styles:
 - **Procedural programming** (writing functions)
 - **Object-oriented programming (OOP)**
 - **Functional programming** (using lambda functions and higher-order functions)

10. Automatic Memory Management

- Python has a built-in garbage collector that manages memory automatically.
- It helps in efficient memory allocation and deallocation

3. Discuss python arithmetic operators

1. Addition (+)

Used to add two numbers.

2. Subtraction (-)

Used to subtract the second number from the first.

3. Multiplication (*)

Used to multiply two numbers.

4. Division (/)

Used to divide the first number by the second. The result is always a float.

5. Floor Division (//)

Divides two numbers and returns only the **integer** part of the quotient (removes decimal part).

6. Modulus (%)

Returns the **remainder** when one number is divided by another.

7. Exponentiation (**)

Raises one number to the power of another.

```
a = 10
b = 3

# Addition
print("Addition:", a + b) # Output: 13

# Subtraction
print("Subtraction:", a - b) # Output: 7

# Multiplication
print("Multiplication:", a * b) # Output: 30

# Division
print("Division:", a / b) # Output: 3.3333

# Floor Division
print("Floor Division:", a // b) # Output: 3

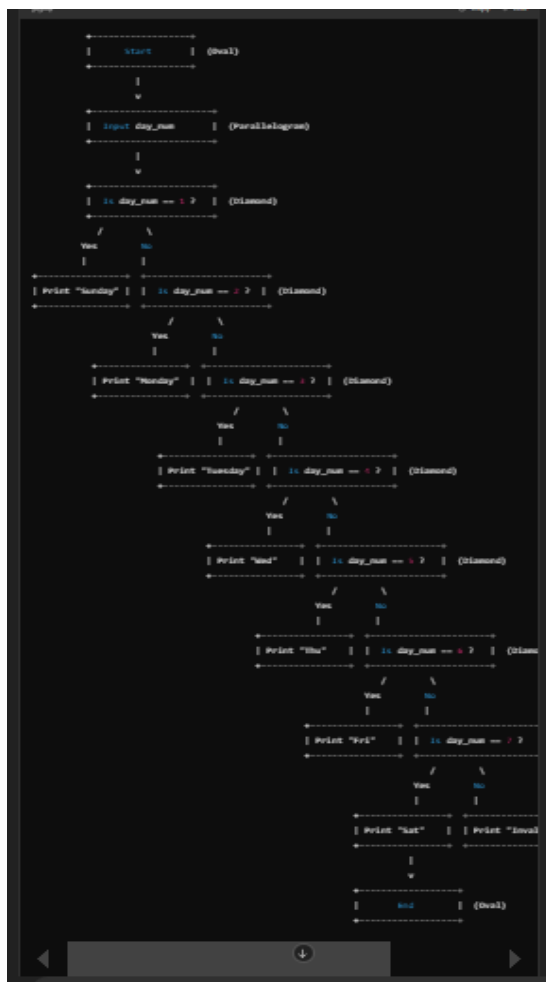
# Modulus
print("Modulus:", a % b) # Output: 1

# Exponentiation
print("Exponentiation:", a ** b) # Output: 1000 (103)
```

5. Take a day number and display day name

Algorithm to Take a Day Number and Display the Day Name

1. Start
2. Input a number (`day_num`) between 1 and 7.
3. Use `if-elif` or `switch-case` statements to determine the corresponding day:
 - If `day_num == 1`, print "Sunday"
 - If `day_num == 2`, print "Monday"
 - If `day_num == 3`, print "Tuesday"
 - If `day_num == 4`, print "Wednesday"
 - If `day_num == 5`, print "Thursday"
 - If `day_num == 6`, print "Friday"
 - If `day_num == 7`, print "Saturday"
 - Otherwise, print "Invalid input! Enter a number between 1 and 7"
4. End



```

day_num = int(input("Enter a number (1-7): "))

# Determine the day using if-elif conditions
if day_num == 1:
    print("Sunday")
elif day_num == 2:
    print("Monday")
elif day_num == 3:
    print("Tuesday")
elif day_num == 4:
    print("Wednesday")
elif day_num == 5:
    print("Thursday")
elif day_num == 6:
    print("Friday")
elif day_num == 7:
    print("Saturday")
else:
    print("Invalid input! Enter a number between 1 and 7.")

```

Algorithm to Calculate Discount Amount

1. Start
2. Input the purchase amount (`amount`).
3. Check the discount percentage based on the given conditions:
 - If `amount <= 1000`, discount is 10%.
 - Else if `1000 < amount <= 5000`, discount is 20%.
 - Else if `5000 < amount <= 10000`, discount is 30%.
 - Else if `amount > 10000`, discount is 50%.
4. Calculate the discount amount:
 - `discount_amount = (discount / 100) * amount`
5. Calculate the final price:
 - `final_price = amount - discount_amount`
6. Print the discount percentage, discount amount, and final price.
7. End



```

# Input purchase amount
amount = float(input("Enter the purchase amount: "))

# Determine discount percentage
if amount <= 1000:
    discount = 10
elif amount <= 5000:
    discount = 20
elif amount <= 10000:
    discount = 30
else:
    discount = 50

# Calculate discount amount and final price
discount_amount = (discount / 100) * amount
final_price = amount - discount_amount

# Display results
print(f"Discount Applied: {discount}%")
print(f"Discount Amount: {discount_amount}")
print(f"Final Price to Pay: {final_price}")

```

Relational operators

| Operator | Meaning | Example | Result |
|--------------------|--------------------------|------------------------|--------------------|
| <code>==</code> | Equal to | <code>5 == 5</code> | <code>True</code> |
| <code>!=</code> | Not equal to | <code>5 != 3</code> | <code>True</code> |
| <code>></code> | Greater than | <code>10 > 8</code> | <code>True</code> |
| <code><</code> | Less than | <code>3 < 7</code> | <code>True</code> |
| <code>>=</code> | Greater than or equal to | <code>6 >= 6</code> | <code>True</code> |
| <code><=</code> | Less than or equal to | <code>4 <= 2</code> | <code>False</code> |