**Name : Sathvik**

**Assignment Report**

**Program No. 1: Arithmetic Operators**

x=int(input("Enter the first number : "))

y=int(input("Enter the second number : "))

print("Addition : ",x+y)

print("Subtraction : ",x-y)

print("Multiplication : ",x\*y)

print("Division : ",x/y)

print("Modulus : ",x%y)

print("Exponentiation : ",x\*\*y)

print("Floor Division : ",x//y)

**Output :**

**Enter the first number : 10**

**Enter the second number : 3**

**Addition : 13**

**Subtraction : 7**

**Multiplication : 30**

**Division : 3.3333333333333335**

**Modulus : 1**

**Exponentiation : 1000**

**Floor Division : 3**

This program demonstrates the usage of basic arithmetic operators such as:

* **Addition (+)**: Adds two numbers.
* **Subtraction (-)**: Subtracts the second number from the first.
* **Division (/)**: Divides the first number by the second.
* **Modulus (%)**: Finds the remainder when the first number is divided by the second.
* **Exponentiation (**)\*\*: Raises the first number to the power of the second.
* **Floor Division (//)**: Performs division but returns the integer part of the result (discards the decimal value).

**Program No. 2: Comparison Operators**

**x = int(input("Enter the first number: "))**

**y = int(input("Enter the second number: "))**

**if x > y:**

**print("X is greater than Y")**

**elif x == y:**

**print("X is equal to Y")**

**else:**

**print("X is less than Y")**

**Output :**

**Enter the first number: 1**

**Enter the second number: 2**

**X is less than Y**

This program compares two numbers provided by the user and uses the comparison operators (<, >) to determine if the first number is greater than or less than the second. It also makes use of:

* **If-elif statements**: Used to check multiple conditions. For example:
  + if a > b: Print that "a is greater".
  + If not satisfied, it proceeds to check other conditions using elif.
  + Finally, else is used if none of the conditions are met.

**Program No. 3: Logical Operators**

**a = eval(input("Enter first Boolean value : "))**

**b = eval(input("Enter second Boolean value : "))**

**c = eval(input("Enter third Boolean value : "))**

**if a and b:**

**print("True")**

**elif not c:**

**print("True")**

**else:**

**print("False")**

**Output :**

**Enter first boolean value : 1**

**Enter second boolean value : 2**

**Enter third boolean value : 3**

**True**

In this program, logical operators (and, or, not) are used with boolean values. These operators return:

* **True** if both operands are true (and).
* **True** if either of the operands is true (or).
* **True** if the operand is false (not).

**Program No. 4: String Manipulation**

**X=input("Enter a string: ")**

**print("Length:", len(X))**

**print("First character and last character:", X[0]+" "+X[-1])**

**print("Reversed:", X[::-1])**

**print("Uppercase:", X.upper())**

**print("Lowercase:", X.lower())**

**Output :**

**Enter a string: Sathvik**

**Length: 7**

**First character and last character: S k**

**Reversed: kivhtaS**

**Uppercase: SATHVIK**

**Lowercase: Sathvik**

This program manipulates strings by performing various operations like:

* Finding the **length** of a string (including spaces).
* Accessing characters using **indexing**. For example, [starting index : ending index].
* Converting strings to **uppercase** using .upper() and to **lowercase** using .lower().

**Program No. 5: String Formatting**

**Name = input("Enter your name: ")**

**Age = input("Enter your age: ")**

**print("Hello " + Name + ", you are " + Age + " years old.")**

**Output :**

**Enter your name: Sathvik**

**Enter your age: 18**

**Hello Sathvik, you are 18 years old.**

A simple program that demonstrates how to manipulate strings and insert variable names in the middle of a string.

**Program No. 6: If-Elif Statements**

**sentence = input("Enter a sentence: ")**

**word = input("Enter a word to search: ")**

**if word in sentence:**

**print(f"The word '{word}' exists in the sentence.")**

**else:**

**print(f"The word '{word}' does not exist in the sentence.")**

**Output :**

**Enter a sentence: Submit your work by the deadline**

**Enter a word to search: work**

**The word 'work' exists in the sentence.**

This program makes use of if and elif statements to check multiple conditions. The index() function is used to find the position of elements in a list.

**Program No. 7: List Functions**

**a=int(input("Enter the number 1:"))**

**b=int(input("Enter the number 2:"))**

**c=int(input("Enter the number 3:"))**

**d=int(input("Enter the number 4:"))**

**e=int(input("Enter the number 5:"))**

**f=(a,b,c,d,e)**

**print([f])**

**print("Sum of all the Number in the list : ",sum(f))**

**print("Largest of all the number in the List : ",max(f))**

**print("Smallest of all the number in the list : ",min(f))**

**Output :**

**Enter the number 1: 1**

**Enter the number 2: 2**

**Enter the number 3: 3**

**Enter the number 4: 4**

**Enter the number 5: 5**

**[(1, 2, 3, 4, 5)]**

**Sum of all the Number in the list : 15**

**Largest of all the number in the List : 5**

**Smallest of all the number in the list : 1**

In this program:

* **sum()** is used to find the sum of all numbers in a list.
* **max()** finds the largest value.
* **min()** finds the smallest value.

**Program No. 8: List Manipulation**

**Fruits = ["Apple", "Orange", "Grapes", "Pineapple", "Mango"]**

**Fruits.append("Goa")**

**Fruits.pop(1)**

**print(Fruits)**

**Output :**

**['Apple', 'Grapes', 'Pineapple', 'Mango', 'Goa']**

The program demonstrates basic list manipulations:

* **append()**: Adds an item to the end of the list.
* **pop()**: Removes an item at a specified index.

**Program No. 9: Sorting a List**

**A = int(input("Enter the number 1: "))**

**B = int(input("Enter the number 2: "))**

**C = int(input("Enter the number 3: "))**

**D = int(input("Enter the number 4: "))**

**E = int(input("Enter the number 5: "))**

**f = [A, B, C, D, E]**

**f.sort()**

**print("Ascending Order of the list: ", f)**

**f.sort(reverse=True)**

**print("Descending Order of the list: ", f)**

**Output :**

**Enter the number 1: 1**

**Enter the number 2: 2**

**Enter the number 3: 3**

**Enter the number 4: 4**

**Enter the number 5: 5**

**Ascending Order of the list: [1, 2, 3, 4, 5]**

**Descending Order of the list: [5, 4, 3, 2, 1]**

The program uses the **split()** function (which splits content based on whitespace or another separator) and sorts the list:

* **Ascending order**: Using reverse=False.
* **Descending order**: Using reverse=True.

**Program No. 10: List Slicing**

**Numbers=[1,2,3,4,5,6,7,8,9,10]**

**print(Numbers[:5])**

**print(Numbers[-5:])**

**print(Numbers[1:7])**

**Output :**

**[1, 2, 3, 4, 5]**

**[6, 7, 8, 9, 10]**

**[2, 3, 4, 5, 6, 7]**

This exercise demonstrates how to slice a list using index ranges. For example:

* [:5] returns elements from the start to the fourth element.
* [-5:] starts from the fifth-last element.
* [1:5] returns elements from the second to the fourth element.