Task :-7. Utilizing function concept in python programming.

Aim: To write the python program using 'Functions' concepts in python

7.1. You are developing small python script to analyze and manipulate a list of students grades for a class project. use the built-in functions print(), len(), type(), max(), min(), and range()

Algorithm:

1. Start
2. Print a welcome msg
3. Determine and print the no. of students: uses len() to find no. of elements.
4. Print the types of list: uses type() to show the type of the student_name
5. Find and print highest and lowest grade: use max() and min()
6. Print sorted list:
7. Print reversed list of grade
8. Generate and print a range of grade indices.
9. stop

output

Welcome to the student Grade Analyzer!

Number of students: 4

Type of student_name list: <class 'list'>

type of student_grades list: <class 'list'>

Highest grade: 92

Lowest grade: 78

Sorted grades: [78, 85, 90, 92]

Reversed grades: [92, 90, 85, 78]

Grade indices from 1 to number of students
: [1, 2, 3, 4].

Program

```
def analyze_student_grades():
    student_names = ["Alice", "Bob", "charlie", "Diana"]
    student_grades = [85, 92, 78, 90]

    Print("welcome to the student Grades Analyzer \n")

    num_students = len(student_names)
    Print("no of students:", num_students)

    Print("\n type of student_names list:", type(student_names))
    print("Type of student_grade list:", Type(student_grade))

    highest_grade = max(student_grade)
    lowest_grade = min(student_grades)
    Print("\n highest grade:", highest_grade)
    Print("Lowest grade:", lowest_grade)
    sorted_grades = sorted(student_grades)
    print("\n sorted grades:", sorted_grades)
    reversed_grades = list(reversed(sorted_grades))
    print("reversed grades:", reversed_grades)
    grade_indices = list(range(1, num_students+1))
    print("\n Grade indices from 1 to no of students:",
                                        grade_indices)

    Analyze_student_grades()
```

output

Arithmetic operations:

Sum of 10 and 5: 15

Difference between 10 and 5: 5

Product of 10 and 5: 50

Quotient of 10 and 5: 2.0

Greeting:

Hello, Alice! Welcome to the program.

7.2 You are tasked with creating a small calculator application to help users perform basic arithmetic operation and greet them with personalized message.

Algorithm

1. Start
2. user input for numbers : The program prompts the user
3. user input for operation :
4. Perform operation
5. Display result
6. stop

Program

```
def add(a,b):
""" Return the sum of two numbers. """
 return a+b
def subtract(a,b):
""" Return the difference between two numbers. """
 return a-b
 def multiply(a,b)
 """ Return the product of two numbers. """
 return a*b
 def divide(a,b)
 """ Return the quotient the two number. Handles
                                    division by zero. """
 if b!=0
  return a/b
```

```
    else:
        return "Error: Division by zero"

def greet(name):
    """return a greeting message for user."""
    return f"Hellow, {name}! Welcome to program."

def main()
    num1 =10
    num2 = 5
    Print ("Arithmetic operations:")
    Print(f"sum of {num1} and {num2}:", add(num1, num2))
    print(f"Difference between {num1} and{num2}:", subtract(num1, num2))
    Print(f"Product of {num1} and {num2}:", multiply(num1, num2))
    print(f"Quotient of {num1} and {num2}:", divide(num1, num2)
    user_name = "Alice"
    print("In Greeting:")
    print(greet(user_name))

if __name__ == "__main__":
    main()
```

Result :- Thus, the python program using 'functions' concepts was successfully executed and the output was verified.

VEL TECH	
EX No.	7
PERFORMANCE (5)	5
RESULT AND ANALYSIS (5)	5
VIVA VOCE (5)	5
RECORD (5)	5
TOTAL (20)	20
SIGN WITH DATE	

10/12.