Task NO-6 UTILIZING 'FUNCTIONS' CONCEPTS IN PYTHON PROGRAMMING

Aim:- To write a pytho program using 'functions' concepts in python.

Algorithm:-

-> Start the program.
-> print a welcome message: Outputs a simple greeting.
-> Determine a print the number of students: uses len() to find the no. of elements in the student-names list.
-> print the type of lists: uses type() to show the type of the student-names and student-grades lists.
-> find and print highest and lowest grades: uses max() and min() to determine the highest and lowest values in student-grades.
-> print sorted list of grades: uses sorted() to sort the grades.
-> print reversed list of grades. uses reversed() to reverse the sorted list and converts it to a list.
-> Generate and print a range of grade indices: uses range() to create a list of indices from 1 to the number of students.
-> stop.

Program:-

```
def analyze-student-grades():
    #sample data
    student-names = ["Alice","Bob","charlie","Diana"]
    student-grades = [85,92,78,90]
# 1. Print a welcome message
Print("welcome to the student Grades Analyzer!\n")
# 2. Determine and print the number of students
  num-students = len(student-names)
-Print("Number of students:", num-students)
```

output:-

no of students = 4

type of student_name list: <class 'list'>

type of student_grades list: <class 'list'>

highest ~~score~~ grade: 92

lowest grade: 78

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

reversed grades [92, 90, 85, 78]

grade indices from 1 to no. of students: [1, 2, 3, 4]

#3 print the type of the student names list and the grades list

```
print ("In Type of student_names list:" , type (student_na
print ("Type of student_grades list:" , type (student_grad
```

#4 find and print the highest and lowest grade.

```
highest_grade = max(student_grades)
lowest_grade = min(student_grades)
print ("In highest grade:", highest_grade)
print ("lowest grade :", lowest_grade)
```

#5. Print the list of grades sorted in ascending o

```
sorted_grades = sorted (student_grades)
print ("In sorted grades:", reversed_grades)
```

#6. Print the list of grades in reverse order

```
reversed_grades = list( reversed (sorted_graded))
Print ("Reversed grades:", reversed_grades)
```

#7. Generate and print a range of grade indices
1 to the no. of students grade_indices = list(range

```
                                    (1, num_students
print ("In Grade indices from 1 to number of students:
                                    grade_indices)
```

#Run the analysis

```
analyze_student_grades()
```

TASK NO-6.2 :-

you are tasked with creating a small calculator applicat to help users perform basic arithmetic operations and greet them with a personalized message. your application should perform the the following tasks: addition, subtraction, multiplicati division.

Algorithm :-

-> start the program
-> user Input for Numbers : The program prompts the use to enter two numbers.
-> user Input for operation: The program prompts the user choose an arithmetic operation(addition, subtraction, multipli -on, division).
-> perform operation : Based on the user's choice, the progra performs the chosen arithmetic operation using the define functions.
-> Display Result : The program displays the result of the operation.
-> 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 of two numbers. Handl
                division by zero."""
    if b!=0:
        return a/b
    else:
```

output:-

arithmetic operations:

sum of 10 & 5 : 15

difference b/w 10 & 5 = 5

Product of 10 and 5 : 50

quotient of 10 and 5 : 2.0

greeting:

hello, alice! welcome to the program.

```
    return "Error: Division by zero"
def greet(name):
    """Return a greeting message for the user."""
    return f"Hello, {name}! Welcome to the program."
def main():
    # Demonstrating the use of user-defined functions.
    # Arithmetic operations
    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,
                                                    num
    print(f"Quotient of {num1} and {num2}:", divide
                                        (num1, num2)
    # Greeting the user
    user_name = "Alice"
    print("\nGreeting:")
    print(greet(user_name))
# Run the main function
if __name__ == "__main__":
    main()
```

VEL TECH - CSE	
EX NO.	6
PERFORMANCE (5)	5
RESULT AND ANALYSIS (3)	3
VIVA VOCE (3)	3
RECORD (4)	4
TOTAL (15)	
SIGN WITH DATE	

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