Task-6:- utilizing 'Functions' concepts in Python Programming

Aim:- To write the Python Program using 'Functions' concepts in Python Programming

6.1 You are developing a small Python script to analyze and manipulate a list of student grade for a class Project.

Algorithm:-

1. start the Program.
2. Print a welcome message.
3. Determine and Print the number of students.
4. Print the type of lists
5. Find and Print highest and lowest grades
6. Print sorted list of grades
7. Print reversed list of grades.
8. 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")
```

output:

Highest grade: 92
lowest grade: 78.
Sorted grades: [78, 85, 90, 92]
Reversed grades: [92, 90, 85, 78]
Grade indices from, to number of students: [1, 2, 3, 4].

#2 Determine and Print the number of students

```
num_students = len(student_names)
Print("number of students:", num_students)
```

3. Print the type of the student names list and the grades list.

```
Print("\n type of student_names list:", type(student_names))
Print("type of student_grades list:", type(student_grades))
```

4: Find and Print the highest and lowest grade

```
highest_grade = max(student_grades)
lowest_grade = min(student_grades)
```

#5 Print the list of grades in reverse grade.

```
reversed_grades = list(reversed(sorted_grades))
Print("Reversed grade", reversed_grades)
```

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

Algorithm:-

1. start the Program
2. user input for numbers.
3. user input for operation.
4. Perform operation
5. Display result.
6. stop.

6.2 Program.

```
def add (a,b):
""" Return the sum of two numbers."""
 return a+b.
def subtract (a,b):
""" Return the difference b/w 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. Handles division
    by zero """
if b!=0:
  return a/b.
else:
```

Output:-

Arithmetic operations:
sum of 10 and 5 : 15
Difference b/w 10 and 5 : 5.
Product of 10 and 5 : 50.
Quotient of 10 and 5 : 2.0.

```
    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 b/w {num1} and {num2}:", Subtract
                                                (num1, num2))
    # Greeting the user.
    user_name = "Alice"
    Print ("In Greeting:")
    Print (greet(user_name))
    # Run the main function
    if __name__ == "__main__":
    main()
```

VEL TECH	
EX NO.	6
PERFORMANCE (5)	5
RESULT AND ANALYSIS (5)	5
VIVA VOCE (5)	5
RECORD (5)	
TOTAL (20)	15
SIGN WITH DATE	24/9

Result:- Thus the Python program using 'Functions' concepts was successfully executed.