7a Utilizing Function Concepts in Python Programming

Aim: to write the Python Program Using Function Concepts in Python.

Algorithm:

1. Start
2. Print a welcome message: outputs a simple greetings
3. Determine and Print the number of students: Uses len() to find the number of elements in the students_names list
4. Find the Print highest and lowest grades: uses max() and min() to determine the highest and lowest values in student_grades.
5. Print sorted list of grades: Uses sorted() to sort the grades.
6. generate and Print a range of grade in dices Uses range() to Create a list of indices from 1 to the number of student
7. stop

Program:

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

    Print("Welcome to the student grades Analyzer!\n")
```

```
welcome to the student : 4
number of student : 4
type of students_name list : <class 'list'>
highest grade :92
lowest grade : 78
sorted grade : [78, 85, 90, 92]
reversed grades : [92, 90, 85, 78]
grade indices from 1 to number of student : [1, 2, 3, 4]
```

```
num_students = len(student_names)
 Print("Number of students:", num_students)
 Print("\n type of student_names list:", type(student_names))
 Print("Type of student_grades list:", type(student_grades))
 highest_grade = max(student_grades)
 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 number of students:", grade_
                                                          indices)

# Run the analysis
 analyze_student_grades()
```

Task 7.2

Aim: To Creating a small Calcutator application to help users Perform basic arithmetic operation.-

Algorithm:

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

Program:

```
def add (a,b):
    return a+b
def subtract (a,b):
    return a-b
def multiply (a,b):
    return a*b
def divide (a,b):
    if b!=0
      return a/b
  else
    return "Error: Division by zero"
 def greet (name):
return f"Hello {name}! Welcome to the 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("\n Greeting:")
    Print (greet (user-name))
   if _name_ == "_main_":
```

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

Result: thus the Python Program Using 'Functions' Concepts was successfully executed and the output was Verified.