Output:-

Welcome to the student grades analyzer!

number of students : 4

type of student_names list : <class 'list'>

type of student_grade list : <class 'list'>

highest grade: 92

lowest grade : 78

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

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

grades indices from 1 to number of students:

[1, 2, 3, 4]

Task No -6:- Utilizing 'function' concepts in Python programming

6.1 You are developing a small python script to analyze and manipulate a list of student grades for a class project. Write a Python program that satisifies the above requirements using the built-in functions print(), len(), type(), max(), min(), sorted(), reversed(), and range()

Aim:- To write a python program to analyze and manipulate a list of student grades for a class project using functions concept.

Algorithm:-

1. Start the program
2. Print a welcome message: Outputs a simple greeting.
3. Determine and print the number of students: Uses len() to find the number of elements in the student_names list.
4. Print the type of lists: Uses type() to show the type of the student_names and student_grades lists.
5. Find and print highest and lowest grades: Uses max() and min() to determine the highest and lowest values in student_grades
6. Print reversed list of grades: Uses sorted() to sort the grades.
7. Print ~~reversed~~ sorted list of grades: Uses sorted() to sort the grades.
8. Generate and print a range of grade indices: Users range() to create a list of indices from 1 to the number Students.
9. 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)
```

```
# 3. Print the type of the student names list and the grades list.
print("\nType 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)
print("\nHighest grade:", highest_grade)
print("Lowest grade:", lowest_grade)

# 5. Print the list of grades sorted in ascending order
sorted_grades = sorted(student_grades)
print("\nSorted grades:", lowest_grade sorted_grades)

# 6. Print the list of grades in reverse order
reverse_grades = list(reversed(sorted_grades))
print("Reverse grades:", reversed_grades)

# 7. Generate and print a range of grade indices from 1 to the number of students.
grade_indices = list(range(1, num_students + 1))
print("\nGrade indices from 1 to number of students:",
      grade_indices)

# Run the analysis
analyze_student_grades()
```

Sum of 10 & 5 : 15

difference b/w 10 & 5 = 5

Product of 10 and 5 = 50

Quotient of 10 and 5 : 2

greeting:

hello. alice : welcome to program

Eg: You are tasked with creating a small calculator application to help users perform basic operations aritheratic and greet them with a personalized message. Your application should perform the following tasks: addition, subtraction, multiplication, division.

Aim:- To create a python program for creating a small calculator application to perform basic arithematic operations.

Algorithm:-

1. Start the program
2. User Input for Numbers: The program prompts the user to enter two programs.
3. User Input for operations: The program prompts the user to choose an arithematic operation.
4. Perform operations; Based on the user's choice, the program performs the chosen arithmetic operation using the defined functions.
5. Display Result: The program displays the result of the operation.
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 of two numbers. Handles div-
    -ision by zero."""
  return
  if b != 0:
    return a/b
  else:
```

```
    else:
        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,
    num2))
print(f"Quotient of {num1} and {num2}:", divide(num1,
    num2)
# Greeting the user
user_name = "Alice"
print("\nGreetings:")
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
WITH DATE	

Result: Thus, the python program using "Functions" concept was successfully executed and the output was verified.