

Task 6

Utilizing Functions concepts in python

31/9/23

Aim:- To write the python program using 'Functions' concept in Python Programming.

Algorithm:-

1. Start the program.
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 student-name list.
4. Print the type of lists: uses type() to show the type of 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 sorted list of grades: Use sorted() to sort the grades.
7. Print reversed list of grades: Uses reversed() to reverse the sorted list and converts it into a list.
8. Generate and print a range of grade indices:
Uses range[] to create a list of indices from 1 to the no. of students.
9. Stop.

Program:-

```
def analyze_student_grades():
    #simple data
    Student_names = ["Alice", "Bob", "Charlie", "Diana"]
    Student_grades = [85, 92, 78, 90]
```

Output

Welcome to the student 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]

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

- #1 Print a welcome message
print("Welcome to the student Grades Analysis!\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 name list and later
print("In Type of student_names list:", type(student_names))
print("Type of student_grades list:", type(student_grades))
- #4 Find and print highest and lowest grade
highest_grade = max(student_grades)
lowest_grade = min(student_grades)
print("Highest grade:", highest_grade)
print("Lowest grade:", lowest_grade)
- #5. Print the list of grades sorted in ascending order.
sorted_grades = sorted(student_grades)
print("In Sorted grades:", sorted_grades)
- #6 Print the list of grades in reverse order.
~~reversed_grades = list(reversed(sorted_grades))~~
~~print("Reversed 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("In Grade indices from 1 to number of students,"
grade_indices)
- # Run the analysis
analyze_student_grades().

Task B-2

G-2 You are tasked with creating a small calculator application to help users to perform basic arithmetic operations and greet them with a personalized message.

Algorithm

1. Start the program
2. User input for Numbers: The program prompts the user to enter two numbers.
3. User input for Operation: The program prompts the user to choose an arithmetic operations (addition, subtraction, multiplication, division).
4. Perform Operation: Based on the user's choice, the program performs the chosen arithmetic operation using defined operations.
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. Handle division by zero  
    ..."
```

Output:

Arithmetical operations

Sum of 10 and 5: 15

Difference of 10 and 5: 5

Product of 10 and 5: 50

Quotient of 10 and 5: 20

Greeting:

Hello! Alice! welcome to the program

```

if b!=0
    return a/b
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("In Greeting:")
    print(greet(user_name))
# Run the main function
if __name__ == "__main__":
    main()

```

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

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EX-NQ.	G
PERFORMANCE(5)	5
RESULT AND ANALYSIS(3)	3
MINAWOF(3)	3
RECORD(4)	4
TOTAL(4)(5)	15
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