Report File (week2_report.pdf)

Week 2 Assignment Report

BWT ML/DL Track 1

Submission Date: 23/06/2024

1. Question 1

   Approach:

   - The program asks the user to enter their name, age, email, and favorite number.

   - These inputs are stored in a dictionary with keys for each piece of information.

   - The code checks if the email contains both "@" and "." to validate the format.

   - A message is displayed using the user's details in a specific format.

   Logic:

   - User information is collected using input prompts.

   - A loop is used to validate that the email format includes "@" and ".".

   - The information is stored in a dictionary, and a formatted string is printed to show the user's details.

2. Question 2

   Approach:

   - The Is_even function determines if a given number is even or odd.

   - It returns True for even numbers and False for odd numbers.

   - The code prompts the user to enter a number and then prints whether it is even or odd.

   Logic:

   - The function uses the modulus operator % to check if the number is divisible by 2.

      - If the remainder is 0, the number is even; otherwise, it is odd.

3. Question 3

Approach:

- The convert_temperature function converts temperatures between Celsius and Fahrenheit.

- The user inputs the temperature value and specifies the scale ('C' for Celsius or 'F' for Fahrenheit).

- The function converts the temperature to the other scale and prints the result.

Logic:

- To convert from Celsius to Fahrenheit, the formula $F = (C \times 9/5) + 32$ is used.

- To convert from Fahrenheit to Celsius, the formula $C = (F - 32) \times 5/9$ is used.

4. Question 4

Approach:

- The find_max_min function finds the highest and lowest numbers in a given list.

- The user is prompted to enter 5 numbers, which are stored in a list.

- The function is used to find and display the maximum and minimum values from the list.

Logic:

- The built-in max() and min() functions are used to find the maximum and minimum numbers in the list.

5.Question 5

Approach:

- The code collects the name, age, and grade for 3 students from the user.

- This information is stored in a list of tuples, where each tuple contains one student's details.

- The list of tuples is converted into a dictionary, with the student's name as the key and a tuple of (age, grade) as the value.

- The code prints each student's details from the dictionary.

Logic:

- A loop is used to collect input for each student.

- The student details are stored in a list of tuples.

- A dictionary comprehension converts this list into a dictionary.

6. Question 6

Approach:

- The update_inventory function updates an inventory dictionary by adding or removing specified quantities of items.

- An initial inventory with at least 5 items is set up.

- The user is prompted to update the inventory by entering item names and quantities (positive for addition, negative for removal).

- The function ensures that the quantity for any item does not fall below zero.

- The updated inventory is displayed.

Logic:

- The function checks if the item exists in the inventory.

- It adjusts the quantity, ensuring it does not drop below zero by using the max() function.

- The updated inventory is then printed to show the changes.