

Training Report Day-30

10 July 2024

Practice Questions:-

1. ****You're creating a program to manage a zoo's animal population. Declare a variable lion_population with an initial value of 10. The zoo welcomes 5 new lion cubs. Update the lion_population variable and print the total lion population.****
2. ****You're developing a weather monitoring system. Declare a variable temperature with a value of 25.5 degrees Celsius. Due to a sudden heatwave, the temperature increases by 8 degrees. Update and print the new temperature.****
3. ****A science experiment involves tracking the growth of a plant. Declare a variable plant_height with an initial value of 15 centimeters. Over a week, the plant grows 2.5 centimeters taller each day. Update and print the final height of the plant after the week.****
4. ****You're designing a space mission trajectory. Declare variables initial_velocity and acceleration with values 3000 meters per second and 500 meters per second squared respectively. Calculate and print the final velocity after 10 seconds.****
5. ****A group of friends is sharing a pizza. Declare a variable pizza_slices with a value of 8. Each friend wants to have an equal number of slices, and there are 5 friends. Calculate and print the maximum number of slices each friend can have without cutting the pizza.****
6. ****You're modeling the movement of a pendulum. Declare a variable pendulum_length with a value of 1.2 meters. Calculate and print the period of oscillation (time taken for one complete swing) using the formula $T = 2\pi \sqrt{\frac{L}{g}}$, where π is pi (approximately 3.14159) and g is the acceleration due to gravity (approximately 9.81 meters per second squared).****
7. ****A software company is tracking the number of bugs in their codebase. Declare a variable bug_count with an initial value of 100. After a round of debugging, 35 bugs are fixed. Update and print the new bug_count.****
 - You are managing the inventory for a small bookstore. Create a list of book titles available in the store. Add new titles to the list as they arrive. If a book is sold out, remove it from the list. Write a function to check if a specific book is in stock.

- You have a list of grades for a class of students. Write a function to add a new grade to the list. Another function should remove the lowest grade. Write a third function to calculate the average grade.
 - Implement a simple to-do list application. Create a list to store tasks. Write functions to add a task, remove a task by its name, and display all tasks. Ensure that the tasks are displayed in the order they were added.
 - Create a list to store items you need to buy from the grocery store. Write functions to add items, remove items, and check if a specific item is already on the list. Ensure that duplicate items are not added.
 - You are tracking daily temperatures for a month. Create a list to store these temperatures. Write functions to find the highest and lowest temperatures, and to calculate the average temperature for the month.
 - You are responsible for assigning seats to students in a classroom. Create a list to represent the seating arrangement. Write functions to assign a seat to a new student, find a student's seat by name, and swap seats between two students.
 - You are managing employee records for a company. Each employee's record is stored as a tuple containing their name, ID, and department. Create a list of tuples to store these records. Write a function to add a new employee, another to find an employee by their ID, and a function to update the department of a specific employee.
 - You are working on a mapping application that stores geographical coordinates (latitude and longitude) as tuples. Create a list of these coordinate tuples. Write functions to add a new coordinate, find a specific coordinate, and calculate the distance between two coordinates.
 - You have a list of students, where each student is represented as a tuple containing their name, age, and grade. Write a function to add a new student, another function to remove a student by name, and a function to find the student with the highest grade.
8. on system for a software application where configurations are stored as tuples. Each configuration contains a setting name and its value. Write a function to add a new configuration, check if a specific setting exists, and retrieve the value of a specific setting.

- Manage an inventory system where each product is represented as a tuple containing the product name, price, and quantity. Create a list of these product tuples. Write functions to add a new product, update the price of an existing product, and find the total inventory value.