

✓ Problem Statement: Cell Count Adjustment Program

Background:

In cellular biology and microscopy, accurate cell counting is a crucial task. It is often necessary to adjust the initial count based on further observations or additional data. This process is vital in various biological studies and experiments where cell quantity and density are key factors.

Task:

Initial Cell Count:

1. Define a variable `cell_count` with an initial numeric value representing the count of observed cells.
2. Observation Function: Create a function `count_cells` with a print statement about observing cells.
3. Cell Count Adjustment: After the function call, adjust the cell count by adding a predefined number of additional cells observed.
4. Output: Print the final adjusted cell count.

```
# Initial count of cells observed under a microscope
cell_count = 7
print("Observing cells under the microscope:")

def count_cells():
    print("This is a count of cells observed under the microscope.")

count_cells()
print("Now performing a calculation on cell count:")

# Increasing the cell count based on further observation
additional_cells = 2
cell_count = cell_count + additional_cells
print(f"Total cell count after additional observation is {cell_count}.")
```

```
➡ Observing cells under the microscope:
This is a count of cells observed under the microscope.
Now performing a calculation on cell count:
Total cell count after additional observation is 9.
```

✓ Cell Observation Percentage Calculation Program

Background:

In cellular biology and medical diagnostics, accurately calculating the proportion of specific cell types within a sample is essential. This kind of analysis is fundamental in various fields, from basic biological research to clinical diagnostics, where the percentage of a certain cell type can provide critical insights into health conditions or biological processes.

Task:

Create a Python program that calculates the percentage of a specific cell type observed in a total cell count. The program should:

1. Start with a predefined total cell count and the count of a specific cell type (e.g., red blood cells).
2. Implement a function `observed_cells` that takes two arguments: the count of the specific cell type and the total cell count.
3. Inside the function, calculate the percentage of the specific cell type in the total cell count.
4. Return this percentage from the function.
5. Call the function with the appropriate arguments and output the calculated percentage.

```
total_cells = 7
red_cells = 2
def observed_cells(a,b):
    c = a*100/b
    return c

observed_cells(red_cells, total_cells)
```

```
➡ 28.571428571428573
```

✓ Problem Statement: Animal Habitat Identification Program

Background:

In ecology and zoology, identifying the natural habitat of various animal species is fundamental for understanding their ecological roles, behaviors, and conservation needs. Different animals have adapted to thrive in specific habitats like deserts, oceans, or arctic regions.

Task:

Develop a Python program that helps in identifying the typical habitat of certain animal species. The program should include a function that takes the name of an animal species as an input and returns the habitat where this species is commonly found. The program should be capable

of identifying habitats for a predefined set of species and indicate if the species' habitat is unknown.

Program Requirements:

1. Function Definition: Create a function named `identify_habitat` that accepts a parameter representing the species of an animal.
2. Conditional Logic: Use `if`, `elif`, and `else` statements within the function to determine the habitat based on the species.
3. Species and Habitats: For example, if the species is 'Polar Bear', the function should print "Arctic Region". For 'Camel', it should print "Desert", and for 'Dolphin', it should print "Ocean". Include an `else` statement for unknown species.
4. Function Call: Call the function with a sample species name to demonstrate its functionality.

```
def identify_habitat(species):
    if species == 'Polar Bear':
        print("Arctic Region")
    elif species == 'Camel':
        print("Desert")
    elif species == 'Dolphin':
        print("Ocean")
    else:
        print("Unknown habitat")

identify_habitat("Polar Bear")
```