

Activity: Designing a Modular Trip Cost Calculator



Programmers will complete a modular program that calculates the total cost of a road trip. The program includes a `main()` function and multiple helper functions. Each trip detail will be collected using a separate function, ensuring modularity. Some helper functions process parameters, and others return a single value.

Scenario

Planning a road trip involves estimating costs, including fuel, accommodation, and food. To make budgeting easier, travelers need a program that calculates the total estimated trip cost based on:

- Distance to be traveled (km)
- Fuel cost per liter
- Number of nights staying
- Cost per night
- Daily food budget

The program will take these inputs, compute the total estimated trip cost, and display the result.

Skeleton Solution:

#HELPER FUNCTIONS

Function to get user input for distance

```
def get_distance():  
    # TODO: Ask the user to input trip distance and return it  
  
    pass
```

Function to get user input for fuel cost per liter

```
def get_fuel_cost_per_liter():  
  
    # TODO: Ask the user to input fuel cost per liter and return it  
  
    pass
```

Function to get user input for number of nights staying

```
def get_nights_staying():  
  
    # TODO: Ask the user for the number of nights staying and  
  
    return it  
  
    pass
```

Function to get user input for cost per night

```
def get_cost_per_night():  
  
    # TODO: Ask the user for the cost per night and return it  
  
    pass
```

Function to get user input for daily food budget

```
def get_food_budget():  
  
    # TODO: Ask the user for daily food budget and return it  
  
    pass
```

Function to calculate fuel cost (assuming a fixed fuel consumption rate of 8L per 100 km)

```
def calculate_fuel_cost(distance, fuel_cost_per_liter):  
  
    # Formula: (distance / 100) * 8 * fuel_cost_per_liter,  
    return result  
  
pass
```

Function to calculate accommodation and food costs

```
def calculate_accommodation_food_cost(nights, cost_per_night,  
                                       daily_food_budget):  
  
    # TODO: Compute/return accommodation and food cost  
  
pass
```

Function to display the result

```
def display_result(total_cost):  
  
    # TODO: Print the total trip cost in a user-friendly format  
  
pass
```

MAIN FUNCTION

```
def main():  
  
    # TODO: Call the helper functions in the correct order  
  
pass
```

call main

```
main()
```

Activity Instructions:

1. **Complete** the design of each helper function. Some of them process parameters, some of them return a value.
2. **Consider** how to use these helper functions to write a program in `main()` to solve the road trip problem.
3. **Test** the program by running it and entering different trip values.

Reflection Questions:

1. What challenges did you face in implementing the functions?
2. How does breaking down the problem into functions make the code more readable and reusable?
3. What improvements could you make to enhance user experience or input validation?



Happy coding!