

3.17 Drivers are concerned with the mileage obtained by their automobiles. One driver has kept track of several tankfuls of gasoline by recording miles driven and gallons used for each tankful. Develop a program that will input the miles driven and gallons used for each tankful. The program should calculate and display the miles per gallon obtained for each tankful. After processing all input information, the program should calculate and print the combined miles per gallon obtained for all tankfuls. Here is a sample input/output dialog:

```
Enter the gallons used (-1 to end): 12.8
Enter the miles driven: 287
The miles / gallon for this tank was 22.421875

Enter the gallons used (-1 to end): 10.3
Enter the miles driven: 200
The miles / gallon for this tank was 19.417476

Enter the gallons used (-1 to end): 5
Enter the miles driven: 120
The miles / gallon for this tank was 24.000000

Enter the gallons used (-1 to end): -1

The overall average miles/gallon was 21.601423
```

ANS:

2)Top:

*Determine the average miles/gallon for each tank of gas, and the overall miles/gallon for an arbitrary number of tanks of gas*

First refinement:

*Initialize variables*

*Input the gallons used and the miles driven, and calculate and print the miles/gallon for each tank of gas. Keep track of the total miles and the total gallons.*

*Calculate and print the overall average miles/gallon*

Second refinement:

*Initialize totalGallons to zero*

*Initialize totalMiles to zero*

*Input the gallons used for the first tank*

*While the sentinel value (-1) has not been entered for the gallons*

*Add gallons to the running total in totalGallons*

*Input the miles driven for the current tank*

*Add miles to the running total in totalMiles*

*Calculate and print the miles/gallon*

*Input the gallons used for the next tank*

*Set totalAverage to totalMiles divided by totalGallon*

*Print the average miles/gallon*