wProblem Set – Loops & Functions

1. Enter destination city, miles travelled to get there and gallons of gasoline used for any number of trips entered at the keyboard (use ctl+z to stop). Use a function to compute miles per gallon. Display the destination city and miles per gallon for each trip entered. Sum the miles travelled and give a count of the number of trips made. Display these at the end of the program.

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| Input | Process | Output |
| destination\_city | make a function outside of the main block to compute miles/gallon | destination\_city **(inside loop)** |
| miles\_traveled | increment trip count using  trip\_count = trip\_count + 1 | miles\_per\_gallon **(inside loop)** |
| gallons\_used |  | sum of miles **(after ctrl+z)** |
|  |  | number of entries **(after ctrl+z)** |
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1. Allow the employee to enter last name, job code and hours worked (use ctl+z to stop). Use a function to calculate pay. (Job code L is $25/hr, A is $30/hr and J is $50/hr). Give time and a half for overtime. Display last name and pay for each employee. Sum the pay for each employee as well as count the entries made. After all entries are made, compute and display the average pay and the number of entries made.

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| Input | Process | Output |
| last\_name | function (outside of main block) will determine the pay for each entry using if & else statements | avergae\_pay |
| job\_code | increment the entries & keep track of pay sums | entries |
| hours\_worked | divide that sum by entries made |  |
| ctrl+z |  |  |
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1. Allow any number of students to enter their last name and the credits taken (use ctl+z to stop). Charge $250 per credit hour. Use a function to compute total tuition. Display student last name, credits taken and tuition owed. Sum tuition and give a count of the number of students who entered data.

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| Input | Process | Output |
| last\_name | create function to determine tuition = credits\_taken \* 250 | last\_name |
| credits\_taken | sum the tuition | credits\_taken |
| ctrl+z | increment the entries by 1 | tuition |
|  |  | entries (after ctrl+z) |
|  |  | tuition\_sum (after ctrl+z) |
|  |  | average (after ctrl+z) |
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1. Any number of customers will enter a product code (W, C, G) and a quantity (ctl+z to stop). Use a function to determine unit price. Write another function to compute shipping. Then compute the total. Display the product code, unit price, shipping, extended price (quantity x unit price) and total for the order for each entry. Sum and display the total of all entries made.

Product Code Unit Price Shipping

W $10.00 $2.00

C $15.00 $5.00

G $20.00 $7.00

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| Input | Process | Output |
| product\_code | make a function to determine unit price using if statements | sum\_of\_entries |
| quantity | make another function to determine shipping cost |  |
|  | add output from first function to output of the section (do this inside of main block after getting the outputs) |  |
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1. Allow students to enter the department and course code as noted below for any number of courses (ctl+z to stop). Use a function to determine the lab fee also in the table below. For each entry display the department, course code and lab fee. Give the total of all lab fees to collect. Compute and display the average lab fee.

Department Course Code Lab Fee

CIS 101 $50.00

CIS 121 $100.00

MAT 111 $25.00

MAT 112 $35.00

ENG 100 $55.00

All Others $50.00

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| Input | Process | Output |
| department | make a function to determine lab fee using if and else statements | lab\_fee |
| course\_code |  | average lab fee = total lab fee / entries (after ctrl+z) |
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