Problem 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 (string)  Miles traveled (double)  Gallons of gasoline used (double) | Loop until end of file  For each trip:   * Call for the function CalcMPG(miles, gallons) which is dividing the miles / gallon * Display city and MPG * Calculate total miles and trip count | Display Destination city  Miles per gallon  After loop ends: Total miles traveled   * Number of trips made |

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 (String)  Job Code  Hours worked (double) | Loop until eof  Determine hourly rate based on Job code: L = $25, A= $30, J = $50  If hours > 40, compute overtime at 1.5 x rate   * Calc pay(jobcode, hours) to compute pay * Total pay and count of employees | For each employee: display last name , total pay.  After loop ends:  Average pay  Number of employees processed |

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 |
| Students last Name (string)  Credits taken (double) | Eof loop  Function: CompTuition (credits) to calculate tuition  Tuition = credits x $250  Accumulate total tuition and student count | For each students:   * Last name * Credits taken * Tuition owed   After loop ends:  Total tuition owed  Number of students entered |

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  Quantity ordered | Loop until end of file  Functions:  getUnitPrice(code) to get unit price  getShipping(code) to get shipping cost  Compute extended price= quantity x unit price  Compute total = extended price + shipping  Accumulate total of all orders | Display the product code, unit price, shipping, extended price and total for the order for each entry. Sum and display the total of all entries made |

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 (string)  Course Code (int) | Loop until end of file  Function:  getLabFee – to determine lab fee  accumulate the total lab fees and count of entries | For each course:  Display department, course code and lab fee.  After loop ends  Display total lab fees and average lab fee |