**Jerry Olds ID: 1001533643**

**CSE 1310-005**

**Answers for Part 1**

**1.e)**

**1)**

This program will help you choose a car based on cost over time.

Please enter the maintenance deadline year

(cars built after the year you enter will have a lower maintenance cost

than cars built before the maintenance deadline): 2000

Please enter the maintenance cost percentage for cars built after the maintenance deadline: 4.5

Please enter the maintenance cost percentage for cars built before the maintenance deadline: 7

Please enter the amount of years you plan on owning a car: 15

Please enter the cost of gas per gallon.

If you wish to skip this step, press the ENTER key: 1.98

Please enter, on one line, the make, model and year

of the first comparison car: Dodge Ramcharger 1986

Please enter the make, model, and year of the second comparison car: Kia Sorento 2014

Please enter the price and the average miles per gallon of the Dodge Ramcharger: 1400 8

Please enter the price and the average miles per gallon of the Kia Sorento: 22000 28

The comparison of car costs is the initial price

plus cost per year over 15 years with an average

of 15000 miles per year and a price of 1.98 per gallon of gas plus a

yearly maintenance cost of %4.5 of the original car cost

for cars newer than 2000 and %7.000000000000001 for older.

Total cost for the Dodge Ramcharger is 58557.50

Total cost of the Kia Sorento is 52760.71

**2)**

This program will help you choose a car based on cost over time.

Please enter the maintenance deadline year

(cars built after the year you enter will have a lower maintenance cost

than cars built before the maintenance deadline): 2008

Please enter the maintenance cost percentage for cars built after the maintenance deadline: 3

Please enter the maintenance cost percentage for cars built before the maintenance deadline: 9

Please enter the amount of years you plan on owning a car: 12

Please enter the cost of gas per gallon.

If you wish to skip this step, press the ENTER key:

Please enter, on one line, the make, model and year

of the first comparison car: Chevorlet Silverado 2006

Please enter the make, model, and year of the second comparison car: Chevorlet Corvette 2017

Please enter the price and the average miles per gallon of the Chevorlet Silverado: 33000 16

Please enter the price and the average miles per gallon of the Chevorlet Corvette: 79000 24

The comparison of car costs is the initial price

plus cost per year over 12 years with an average

of 15000 miles per year and a price of 2.75 per gallon of gas plus a

yearly maintenance cost of %3.0 of the original car cost

for cars newer than 2008 and %9.0 for older.

Total cost for the Chevorlet Silverado is 99577.50

Total cost of the Chevorlet Corvette is 128065.00

**3)**

This program will help you choose a car based on cost over time.

Please enter the maintenance deadline year

(cars built after the year you enter will have a lower maintenance cost

than cars built before the maintenance deadline): 2000

Please enter the maintenance cost percentage for cars built after the maintenance deadline: 3

Please enter the maintenance cost percentage for cars built before the maintenance deadline: 5

Please enter the amount of years you plan on owning a car: 18

Please enter the cost of gas per gallon.

If you wish to skip this step, press the ENTER key: 2.05

Please enter, on one line, the make, model and year

of the first comparison car: Honda Civic

This is an invalid make and model.

Default make and model of Yugo Cabrio will be used.

Please enter the make, model, and year of the second comparison car: Toyota Camry 2015

Please enter the price and the average miles per gallon of the Yugo Cabrio: 18000 30

Please enter the price and the average miles per gallon of the Toyota Camry: 24000 35

The comparison of car costs is the initial price

plus cost per year over 18 years with an average

of 15000 miles per year and a price of 2.05 per gallon of gas plus a

yearly maintenance cost of %3.0 of the original car cost

for cars newer than 2000 and %5.0 for older.

Total cost for the Yugo Cabrio is 52650.00

Total cost of the Toyota Camry is 52774.29

**4)**

Please enter the cost of gas per gallon.

If you wish to skip this step, press the ENTER key: 2.84

Please enter, on one line, the make, model and year

of the first comparison car: Ford Prius 2010

Please enter the make, model, and year of the second comparison car: Ford Ranger

This is an invalid make and model.

Default make and model of Suzuki Samarai will be used.

Please enter the price and the average miles per gallon of the Ford Prius: 27000 38

Please enter the price and the average miles per gallon of the Suzuki Samarai: 16000 24

The comparison of car costs is the initial price

plus cost per year over 8 years with an average

of 15000 miles per year and a price of 2.84 per gallon of gas plus a

yearly maintenance cost of %6.5 of the original car cost

for cars newer than 2005 and %11.0 for older.

Total cost for the Ford Prius is 59728.42

Total cost of the Suzuki Samarai is 44280.00

**5)**

This program will help you choose a car based on cost over time.

Please enter the maintenance deadline year

(cars built after the year you enter will have a lower maintenance cost

than cars built before the maintenance deadline): 1800

Invalid Input.

Please enter the maintenance deadline year

(cars built after the year you enter will have a lower maintenance cost

than cars built before the maintenance deadline): 2002

Please enter the maintenance cost percentage for cars built after the maintenance deadline: 8

Please enter the maintenance cost percentage for cars built before the maintenance deadline: 11

Please enter the amount of years you plan on owning a car: 20

Please enter the cost of gas per gallon.

If you wish to skip this step, press the ENTER key:

Please enter, on one line, the make, model and year

of the first comparison car: Ford

This is an invalid make and model.

Default make and model of Yugo Cabrio will be used.

Please enter the make, model, and year of the second comparison car: Dodge

This is an invalid make and model.

Default make and model of Suzuki Samarai will be used.

Please enter the price and the average miles per gallon of the Yugo Cabrio: -1

This is an invalid price.

Default price of 965.0 will be used.

-45

This is an invalid mpg.

Default mpg of 19.0 will be used.

Please enter the price and the average miles per gallon of the Suzuki Samarai: -12

This is an invalid price.

Default price of 2643.0 will be used.

-9

This is an invalid mpg.

Default mpg of 14.0 will be used.

The comparison of car costs is the initial price

plus cost per year over 20 years with an average

of 15000 miles per year and a price of 2.75 per gallon of gas plus a

yearly maintenance cost of %8.0 of the original car cost

for cars newer than 2002 and %11.0 for older.

Total cost for the Yugo Cabrio is 46509.05

Total cost of the Suzuki Samarai is 67386.17

**Answers for Part 2**

**2.a)**

Values to test with: dateA (monthA/dayA/yearA)1/5/1935, dateB 10/15/1963

Strings: monthAName is "January", monthBName is "October", and subAName is "Jan"

Relational operator tests

bRela1 is (dayA > dayB) \*\* false

bRela2 is (monthA < monthB) \*\* true

bRela3 is (yearA == yearB) \*\* false

Logical operator tests

bLogic1 is (yearB > yearA) && bRela2 \*\* true

bLogic2 is !(bRela3) \*\* true

bLogic3 is !(bRela1 || bLogic1) \*\* false

String equality tests

bString1 is (monthAName == monthBName) \*\* false

bString2 is (monthAName.equals(monthBName)) \*\* false

bString3 is (monthBName.equalsIgnoreCase("october")) \*\* true

Comparison tests for ordering

bString1 is (("May".compareTo("Jan")) < 0) \*\* false

bString2 is (("May".compareTo("Jan")) == 0) \*\* false

bString3 is (("May".compareTo("Jan")) > 0) \*\* true

**2.b)**

When you compare two strings with the == operator, you are comparing the two addresses of the strings. To compare the contents within the strings you need to use the equals function.

**2.c)**(yearA == yearB)

**2.d)**true

**Answers for Part 3**

**3.b)**

**1)**

This program will read in the price and quantity of items, then output the total cost

along with the highest priced item and the item with the highest quantity.

Enter the value -1 for price to display results.

Please enter the price of the item: 5.34

Please enter the quantity of the item: 4

Please enter the price of the item: 12.10

Please enter the quantity of the item: 1

Please enter the price of the item: 3.75

Please enter the quantity of the item: 2

Please enter the price of the item: 8.12

Please enter the quantity of the item: 6

Please enter the price of the item: 1.25

Please enter the quantity of the item: 3

Please enter the price of the item: 17.13

Please enter the quantity of the item: 1

Please enter the price of the item: 2.55

Please enter the quantity of the item: 4

Please enter the price of the item: -1

Total cost: $120.76

Total items: 7

Highest price : $17.13

Largest quantity: 6

**2)**

This program will read in the price and quantity of items, then output the total cost

along with the highest priced item and the item with the highest quantity.

Enter the value -1 for price to display results.

Please enter the price of the item: 3.54

Please enter the quantity of the item: 2

Please enter the price of the item: 1.05

Please enter the quantity of the item: 7

Please enter the price of the item: 8.39

Please enter the quantity of the item: 4

Please enter the price of the item: 10.11

Please enter the quantity of the item: 3

Please enter the price of the item: 7.98

Please enter the quantity of the item: 7

Please enter the price of the item: 2.10

Please enter the quantity of the item: 6

Please enter the price of the item: 3.14

Please enter the quantity of the item: 1

Please enter the price of the item: 6.91

Please enter the quantity of the item: 2

Please enter the price of the item: -1

Total cost: $163.74

Total items: 8

Highest price : $10.11

Largest quantity: 7

**3.c)**

I chose the while loop because I don’t know how many times the user will want to run through the loop. The while loop will run as long as the user wants it to run. The price variable controls the loop because when the user enters -1 for the price, it terminates the loop.

**3.d)**

I used a couple of nested while loops to validate the input of the user. The test of the while loop is that while the input is less than or equal to 0, it will prompt the user to input another value. It will keep doing this until the user enters a positive value. I could’ve used if(price <= 0) to check the validity of the input but if the user inputted 2 negative numbers in a row the second one would go through.

**3.e)**

The program could read an input file like a .txt file and then preform operations on the information from the file. That would make it so the user wouldn’t have to type input in to the program and it would read all the items all at once.