

CIT 383 – Administrative Scripting
Project 1

Problem

You are to create a program that will perform as a simple cash register. You will display a menu list to the user. The user will choose a menu item and, if any, enter additional information for that particular menu item. The system will keep track of totals only. Meaning, if the user entered in the price of 6 different items, each item's price does not need to be tracked separately, just the total of those 6 items added together. The menu item will be displayed after each transaction until the user has selected the menu item to exit the application.

Step 1: (5 Points) Keeping the Application Alive

You will use a loop to keep the application running/alive until the user has chosen the appropriate menu item to exit the application.

Step 2: (5 Points) Transaction Menu

Display the following menu to the user. The user will use the number in front of the menu item to initiate the particular transaction. After each transaction the menu will be re-displayed to the user.

Transaction ID	Transaction Description	Data Type	Notes
1	Add Item Charge	Float 2 decimal places	Must be > 0
2	Add Labor Charge	Float 2 decimal places	Must be > 0
3	Apply Discount	Integer	Valid Values: 5, 10, or 15 only
4	Apply Gift Card	Float 2 decimal places	Must be > 0
5	Total		No data entry
9	New Transaction		No data entry
0	Exit Application		No data entry

Step 3: (60 points) Processing Transactions

You will process each specific transaction as noted below.

Note: If additional data is needed, and the data is of a float data type, you can ensure a 2 decimal point precision by using the `.round(<number of decimal points>)` after converting to a float data type.

```
price = gets().to_f()  
price = price.round(2)
```

Transaction ID	Transaction Action	Notes
1 (10 points)	Prompt the user for the price amount. Add the price amount to Total Price Amount.	Keep track of the number of items user has entered in.
2 (10 points)	Prompt the user for the price amount. The price amount will be added at the end to the Grand Total Amount	This has a maximum of a one-time charge. Meaning, the user can enter a valid amount only once for a new transaction.
3 (10 points)	Prompt the user for the discount percentage (5, 10 or 15). The discount will be applied when the user selects the Total Transaction	The discount percentage can only be applied to the Total Price Amount, <u>not</u> to any Labor Charges. This has a maximum of a one-time discount. Calculated as: (Discount Amount / 100) * Total Price Amt
4 (10 points)	Prompt the user for amount of the gift card	Keep track of the number of gift cards the user has entered in.
5 (10 points)	This will calculate the Grand Total for the customer.	Format of output will be described later on in document. If customer has sufficient gift cards to cover entire cost,

	Total Amount (Sum of all #1 Transactions) Apply discount to Total Amount Apply Tax Rate of 6.5% to Total Amount Add Labor Charge (if any) Subtract Gift Card(s) Amount (if any)	note that gift card will have a remaining balance, otherwise, show amount due by customer. The user can enter in the Total Transaction ID at any time and as many times as the user deems necessary. It does not constitute a new transaction
9 (5 points)	Clear out all values	Simulates a new customer
0 (5 points)	Exit Application	Just as the description implies

Step 4: (25 Points) Validating Data

Any entry made by the user must be validated. If the entry is invalid, display a message to the user and immediately return to the Transaction Menu. DO NOT exit the application due to invalid data. Keep mindful of single charge items such as Discount and Labor Charge, if the data for the discount or charge is incorrect, the user can select the item again to enter in valid data.

There are a total of 5 areas to validate data, each are worth 5 points:

Transaction Menu ID, Item Charge Amount, Labor Charge Amount, Discount Amount, and Gift Card Amount.

Step 5: (5 Points) Format of Total output. All floating numbers places should be rounded to 2 decimal places. It is okay if a zero is dropped after the decimal point.

Description	Quantity	Amount
-----	-----	-----
Items	<total #>	<Total Amount>
Discount	<amount> %	- <Total Discount Amount> (notice the negative symbol)
Tax	6.5%	<Tax Rate * (Total Amount – Total Discount Amount)>
Labor	<0 or 1>	<Labor Amount>
Grand Total		<Total Amount – Total Discount Amount + Calculated Tax + Labor Amount>

Gift Cards	<total #>	- <Total Gift Card(s) Amount> (notice the negative symbol)
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<Remaining Balance>	<Amount remaining balance on gift card if the Total Amount of Gift Cards is greater than the Grand Total, then the Total Amount of Gift Cards – Grand Total>
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-OR-

<Please Pay Amount>	<Amount of Grand Total minus Total Amount of Gift Cards>
---------------------	--

Step 6: Bonus (10 points)

On your own, research how to format a number such that any trailing zeros after the decimal point will show. Then apply that to the Output as described in Step 5 for any dollar amount.

Step 7: Save and Execute file

1. Save your Ruby file, using the file name listed below:

Project1.rb

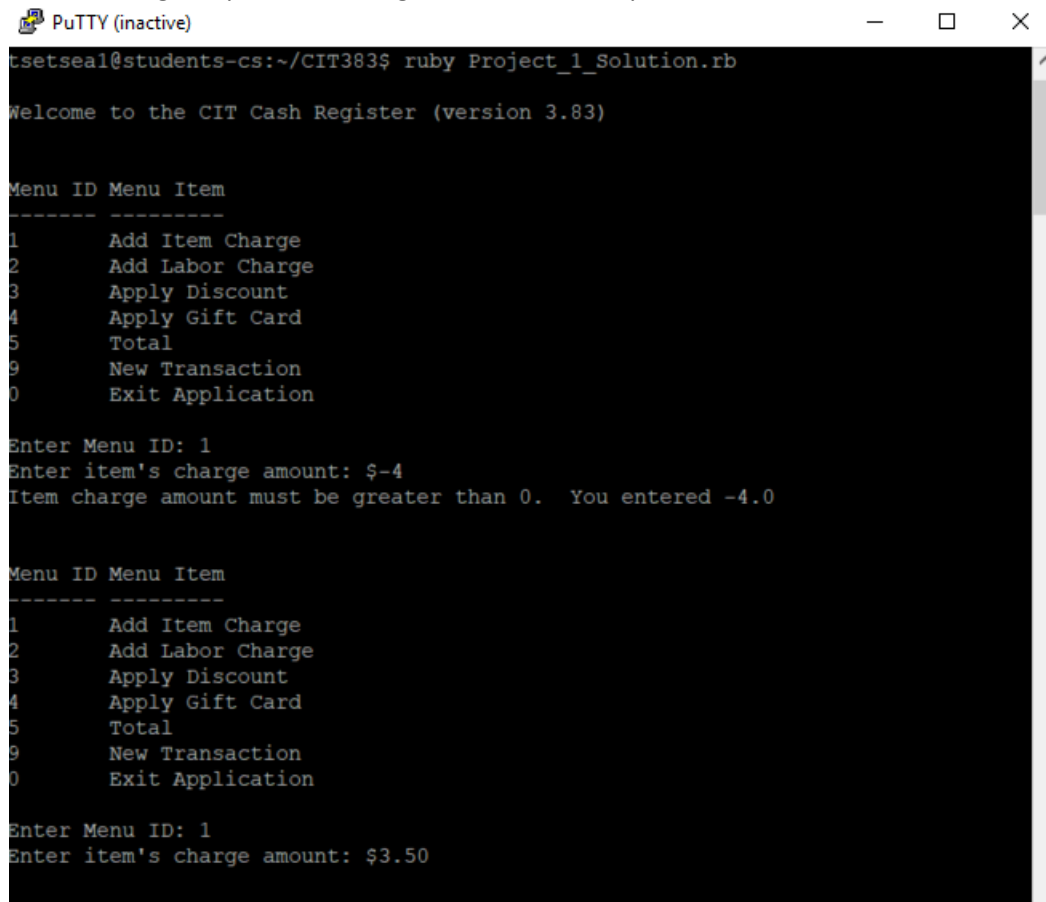
2. Upload to linux server (if needed)
3. Execute your ruby script either explicitly or implicitly.

Helpful Hints

1. To keep an application alive, use a *while* loop.
2. Code Small (5 to 10 lines), Compile Small (check for Syntax Errors), Test Small (test your new changes).
3. Map out all the variables that you think you might need first.
4. Use appropriate variable names and comments to aid while developing.

Sample Runs

The following sample run is a single run across multiple screen shots.



```
tsetseal@students-cs:~/CIT383$ ruby Project_1_Solution.rb

Welcome to the CIT Cash Register (version 3.83)

Menu ID Menu Item
-----
1      Add Item Charge
2      Add Labor Charge
3      Apply Discount
4      Apply Gift Card
5      Total
9      New Transaction
0      Exit Application

Enter Menu ID: 1
Enter item's charge amount: $-4
Item charge amount must be greater than 0.  You entered -4.0

Menu ID Menu Item
-----
1      Add Item Charge
2      Add Labor Charge
3      Apply Discount
4      Apply Gift Card
5      Total
9      New Transaction
0      Exit Application

Enter Menu ID: 1
Enter item's charge amount: $3.50
```

```
Menu ID Menu Item
-----
1      Add Item Charge
2      Add Labor Charge
3      Apply Discount
4      Apply Gift Card
5      Total
9      New Transaction
0      Exit Application

Enter Menu ID: 1
Enter item's charge amount: $4.0

Menu ID Menu Item
-----
1      Add Item Charge
2      Add Labor Charge
3      Apply Discount
4      Apply Gift Card
5      Total
9      New Transaction
0      Exit Application

Enter Menu ID: 8
You have entered an invalid menu option

Menu ID Menu Item
-----
1      Add Item Charge
2      Add Labor Charge
3      Apply Discount
4      Apply Gift Card
5      Total
9      New Transaction
0      Exit Application

Enter Menu ID: 2
Enter labor charge amount: $10.00

Menu ID Menu Item
-----
1      Add Item Charge
2      Add Labor Charge
3      Apply Discount
4      Apply Gift Card
5      Total
9      New Transaction
0      Exit Application

Enter Menu ID: 2
Labor charge has already been applied.
```

```
Menu ID Menu Item
-----
1      Add Item Charge
2      Add Labor Charge
3      Apply Discount
4      Apply Gift Card
5      Total
9      New Transaction
0      Exit Application
```

Enter Menu ID: 5

Receipt

Description	Quantity	Amount
Items	2	\$7.50
Discount	0%	-\$0.00
Tax	6.5%	\$0.49
Labor	1	\$10.00
Grand Total		\$17.99

Gift Cards	0	-\$0.00
------------	---	---------

Please Pay Amount \$17.99

```
Menu ID Menu Item
-----
1      Add Item Charge
2      Add Labor Charge
3      Apply Discount
4      Apply Gift Card
5      Total
9      New Transaction
0      Exit Application
```

Enter Menu ID: 3

Enter discount percentage (5, 10 or 15): 20

Discount percentage must be 5, 10 or 15. You entered 20

```
Menu ID Menu Item
-----
1      Add Item Charge
2      Add Labor Charge
3      Apply Discount
4      Apply Gift Card
5      Total
9      New Transaction
0      Exit Application
```

Enter Menu ID: 3

Enter discount percentage (5, 10 or 15): 10

```
Menu ID Menu Item
-----
1      Add Item Charge
2      Add Labor Charge
3      Apply Discount
4      Apply Gift Card
5      Total
9      New Transaction
0      Exit Application
```

Enter Menu ID: 5

Receipt

Description	Quantity	Amount
Items	2	\$7.50
Discount	10%	-\$0.75
Tax	6.5%	\$0.44
Labor	1	\$10.00
Grand Total		\$17.19

Gift Cards	0	-\$0.00
------------	---	---------

Please Pay Amount \$17.19

```
Menu ID Menu Item
-----
1      Add Item Charge
2      Add Labor Charge
3      Apply Discount
4      Apply Gift Card
5      Total
9      New Transaction
0      Exit Application
```

Enter Menu ID: 4

Enter gift card amount: \$5.00

```
PutTY (inactive)
Menu ID Menu Item
-----
1      Add Item Charge
2      Add Labor Charge
3      Apply Discount
4      Apply Gift Card
5      Total
9      New Transaction
0      Exit Application

Enter Menu ID: 5
Receipt
Description      Quantity      Amount
-----
Items            2            $7.50
Discount         10%         -$0.75
Tax              6.5%         $0.44
Labor            1            $10.00
Grand Total                        $17.19

Gift Cards       1            -$5.00

Please Pay Amount      $12.19

Menu ID Menu Item
-----
1      Add Item Charge
2      Add Labor Charge
3      Apply Discount
4      Apply Gift Card
5      Total
9      New Transaction
0      Exit Application

Enter Menu ID: 3
Discount has already been applied.

Menu ID Menu Item
-----
1      Add Item Charge
2      Add Labor Charge
3      Apply Discount
4      Apply Gift Card
5      Total
9      New Transaction
0      Exit Application

Enter Menu ID: 4
Enter gift card amount: $20
```



```

PuTTY (inactive)
Menu ID Menu Item
-----
1      Add Item Charge
2      Add Labor Charge
3      Apply Discount
4      Apply Gift Card
5      Total
9      New Transaction
0      Exit Application

Enter Menu ID: 5
Receipt
Description      Quantity      Amount
-----
Items            2            $7.50
Discount         10%         -$0.75
Tax              6.5%         $0.44
Labor            1            $10.00
Grand Total                      $17.19

Gift Cards       2            -$25.00

Remaining Gift Card Balance      $7.81

Menu ID Menu Item
-----
1      Add Item Charge
2      Add Labor Charge
3      Apply Discount
4      Apply Gift Card
5      Total
9      New Transaction
0      Exit Application

Enter Menu ID: 9
Creating a new transaction

```

```

Menu ID Menu Item
-----
1      Add Item Charge
2      Add Labor Charge
3      Apply Discount
4      Apply Gift Card
5      Total
9      New Transaction
0      Exit Application

Enter Menu ID: 5
Receipt
Description      Quantity      Amount
-----
Items            0              $0.00
Discount         0%             -$0.00
Tax              6.5%          $0.00
Labor            0              $0.00
Grand Total                      $0.00

Gift Cards       0              -$0.00

Please Pay Amount          $0.00

Menu ID Menu Item
-----
1      Add Item Charge
2      Add Labor Charge
3      Apply Discount
4      Apply Gift Card
5      Total
9      New Transaction
0      Exit Application

Enter Menu ID: 0
Thank you for using the CIT Cash Register (version 3.83)
tsetseal@students-cs:~/CIT383$

```