

Computer Science 1081 – Assignment #03

Program #1

A movie theater only keeps a percentage of the revenue earned from ticket sales. The remainder goes to the movie distributor. Write a program that calculates a theater's gross and net box office profit for a night. The program should ask for the name of the movie, and how many adult and child tickets were sold. (The price of an adult ticket is \$10.00 and a child's ticket is \$6.00).

- Use constants for values that aren't supplied by the user (such as the prices and profit margin)

Sample Execution:

```
Please enter the movie name: St. Patrick's Revenge
Please enter the number of adult tickets sold: 5621
Please enter the number of child tickets sold: 125
```

```
Movie Name:                "St. Patrick's Revenge"
Adult Tickets Sold:         5621
Child Tickets Sold:         125
Gross Box Office Profit:    $ 56960.00
Net Box Office Profit:      $ 11392.00
Amount Paid to Distributor: $ 45568.00
Press any key to continue . . .
```

Things to Test/verify:

- What happens if the movie name is more than a single word?
- Are your outputs formatted for their units?
- Did you use constants as specified?

Program #2

A retail company must file a monthly sales tax report listing the sales for the month and the amount of sales tax collected. Write a program that asks for the month, the year, and the total amount collected at the cash register (that is, sales plus sales tax). Assume the state sales tax is 4 percent and the county sales tax is 2 percent.

If the total amount collected is known and the total sales tax is 6 percent, the amount of product sales may be calculated as: $S = (T/1.06)$. S is the product sales and T is the total income.

- Display the year next to the month as shown in the example below
- Use const for the tax rates

Sample Execution:

```
Please enter the Month: January
Please enter the year: 2017
Please enter the total amount collected: $482
```

```
Month: January 2017
-----
Total Collected:      $      482.00
Sales:                 $      454.72
County Sales Tax:      $         9.09
State Sales Tax:       $      18.19
Total Sales Tax:       $      27.28
Press any key to continue . . .
```

Things to Test/verify:

- What happens if the month name is more than a single word?
- What happens if the year is not entered as an integer?
- Are your outputs formatted for their units?
- Did you use constants as specified?

Program #3

Assuming there are no deposits other than the original investment, the balance in a savings account after one year may be calculated as: $\text{Amount} = \text{Principal} * (1 + (\text{Rate}/T))^T$. Principal is the balance in the savings account, Rate is the interest rate, and T is the number of times the interest is compounded during a year (T is 4 if the interest is compounded quarterly). Write a program that asks for the principal, the interest rate, and the number of times the interest is compounded.

Sample Execution:

```
Please enter the Principal Balance: $30284
Please enter the interest rate (as a decimal): 0.03
Please enter the number of times interest is compounded: 120
```

```
Interest Rate:                3%
Times Compounded:             120
Principal:                    $ 30284.00
Interest:                     $   922.17
Amount in Savings:            $ 31206.17
Press any key to continue . . .
```

Things to Test/verify:

- Are your outputs formatted for their units?
- What happens if the interest rate is a fractional (real) number?