Sidhant Puntambekar
Homework #1
CSCI-1300

HMWK1_Puntambekar

Problem 1:

```
// Find number of births, deaths, and immigrants per year via dimensional analysis

        int initialPopulation = 328441687
        int numBirthsPerYear = (1/8)*60*60*24*365
        int numDeathsPerYear = (1/12)*60*60*24*365
        int numImmigrantsPerYear = (1/27)*60*60*24*365

// Calculate net population by adding number of immigrants and births while subtracting deaths
and store in net population variable

        netPopulationInYear =  initialPopulation + numBirthsPerBirths - numDeathsPerYear +
        numImmigrantsPerYear

// Return net population in year variable

        return netPopulationInYear
```

Problem 2:

```
// Takes user input and stores it in integer variable “seconds”
        secondsInDay = 60*60*24
        secondsInHour = 60*60
        secondsInMinute = 60
        int seconds = input (“Please enter a seconds value between 0 and 1000000”)

        numDays = seconds/secondsInDay
        seconds = seconds - numDays*secondsInDay

        numHours = seconds/secondsInHour
        seconds = seconds - numHours*secondsInHour

        numMinutes = seconds/secondsInMinute
        seconds = seconds - numMinutes*secondsInMinute

        output (“The time is” numDays “days,” numHours “hours,” numMinutes “minutes, and”
seconds “seconds.”)
```

Problem 3:

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```
String input = input (“Which option do you want to select?”)
while(true)
        If input equals “Fight the villain”
                Output (“You win!”)
        Else if input equals “Save the citizen”
                Output (“You saved the citizen”)
        Else if input equals “Return to secret base”
                Output (“Who will save the world?”)
                Break
Output (“Game over”)
```

Problem 4a:

```
Int initialDeposit = 10000
Int month = 0

While initialDeposit is greater than 0
        month = month + 1
        initialDeposit = initialDeposit - 500
        Interest = initialDeposit * 0.005
        initialDeposit = initialDeposit + interest
output(month/12)
```

Problem 4b:

```
Int initialDeposit = input (“Please enter a value for the principal”)
Double interestRate = input (“Please enter a value for the interest rate (enter as a decimal and
not a percent)”)
Int monthlyExpenditure = input (“Please enter a monthly expenditure value”)
Int month = 0

While initialDeposit is greater than 0
        month = month + 1
        initialDeposit = initialDeposit - monthlyExpenditure
        interest = initialDeposit * interestRate
        initialDeposit = initialDeposit + interest

        If (interest >= monthlyExpenditure)
                break
output(month/12)
```

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Problem 5:

```
String input = input (“Please enter a set of ten characters”)
Int count = 0
For char i in input
        If i equals ‘a’
                Count = count + 1
        If i equals ‘e’
                Count = count + 1
        If i equals ‘i’
                Count = count + 1
        If i equals ‘o’
                Count = count + 1
        If i equals ‘u’
                Count = count + 1
Output(count)
```

Problem 6:

```
double TC = input (“Please enter a cold reservoir absolute temperature”)
double TH = input (“Please enter a hot reservoir absolute temperature”)

double η = 1 - (TC / TH)

output (η)
```