Krishna Dholakiya
Student ID: 106318914
Assignment #1

One

```
define calculateUSPopulation(birthRate, deathRate, immigrationRate)
      currentPopulation = 307357870;
      timeInterval = 3.154 * (10^7); // 365 days converted to seconds
      increaseInPopulation = 0;

      for (i = 0; i <== timeInterval; i++)
            if (i % birthRate == 0 || i % immigrationRate == 0)
                  increaseInPopulation = increaseInPopulation + 1
            else if (i % deathRate ==0)
                  increaseInPopulation = increaseInPopulation - 1

      print (currentPopulation + increaseInPopulation)

calculateUSPopulation(7, 13, 35)
```

Two

```
define hoursMinutesSeconds(seconds)
      hours = Math.floor(seconds/3600)
      remainder = seconds % 3600
      if (remainder >= 60)
            minutes = Math.floor(remainder/60)
            seconds = remainder % 60
      else
            minutes = 0
            seconds = remainder
      print ("The time is " + hours + " hours, " + minutes + " minutes,
and " + seconds + " seconds")

hoursMinutesSeconds(input(“Enter the number of seconds: “))
```

Three

```
define fahrenheitToCelsius(fahrenheitTemperature)
      celsius = (fahrenheit - 32) * (5/9)
      return celsius
```

Four

```
define oneToTen()
      correct = false
      while (!correct)
            entry = input(“Enter a number between 1 and 10: “)
            if (entry >= 1 && entry <= 10)
                  correct = true
      return false

oneToTen()
```

Five

```
define mpgChecker()
      mpg = input(“How many miles per gallon does your car do?”)
      if (mpg > 30)
            print "Nice job"
      else if (mpg >= 15 && mpg <= 29)
            print "Not great, but okay."
      else if (mpg < 15)
            print "So bad, so very, very bad”

mpgChecker()
```

Six

```
define getUserChoice()
      print "Choose from the following:\n"
      print "   a. Fight the dragon [enter A]\n"
      print "   b. Go home [enter B]\n"
      print "   c. Save the princess [enter C]\n"
      userInput = input(“Your choice is: “)
      return userInput

define playGame()
      userChoice = ""
      while (userChoice !== "B")
            userChoice = getUserChoice()
            if (userChoice == "B")
                  print "Wimp"
            else if (userChoice == "A")
                  print "You win!"
            else if (userChoice == "C")
                  print "You saved the princess"
      return false

playGame()
```

Seven

```
define robotGame()
      Rx = 0
      Ry = 0
      // getCurrentLocation(x, y) returns color of tiles at coordinates
passed as arguments

      won = false
      while (!won)
            currentLocation = getCurrentLocation(Rx, Ry)
            if (currentLocation == "white")
                  Ry = Ry + 1
            else if (currentLocation == "blue")
                  Rx = Rx - 1
            else if (currentLocation == "green")
                  Rx = Rx + 1
            else if (currentLocation == "black")
                  Ry = Ry - 2
            else if (currentLocation == "yellow")
                  print "You've won!"
                  won = true
      return false
```