**ASSIGNMENT 1**

1.

spb = 7 //seconds per birth

spd = 13 //seconds per death

spi = 35 //seconds per immigrant

currpop = 303357970 //current population

secinyr = 365\*24\*60\*60 //seconds in a year

newpop = currpop + (secinyr/spb) //add new borns

newpop = newpop - (secinyr/spd) //minus deaths

newpop = newpop + (secinyr/spi) //add immigrants

print(newpop)

2.

secinday = 86400 //seconds in a day

secinmin = 60 //seconds in a minute

secinhr = 3600 //seconds in an hour

x = input("Enter number of seconds")

while x < 0 or x > 86400

x = input("The number of seconds should be between 0 and 86400")

H = x / secinhr //number of hours

x = x % secinhr //remaining seconds

M = x / secinmin //number of minutes

x = x % secinmin //remaining seconds

S = x //number of seconds

output("The time is H hours, M minutes, and S seconds")

3.

fahrenheit = input("Enter the temperature in fahrenheit")

celsius = (fahrenheit - 32) \* (5/9)

output("fahrenheit F is celsius C")

4.

x = input("Enter a number between 1 and 10")

while x < 1 or x > 10

output("The number does not lie between 1 and 10")

x = input("Enter a number between 1 and 10")

output(x)

5.

mileage = input("Enter the miles per gallon of your car")

while mileage < 0

output("Mileage cannot be negative. Enter a valid number.")

mileage = input("Enter the miles per gallon of your car")

if mileage > 30

output("Nice job")

else if mileage >= 15

output("Not great, but okay.")

else

output("So bad, so very, very bad")

6.

output("Welcome to the Dark Age.")

output("You are the head of the Round Table, Sir X.")

output("Your kingdom is in peril and everyone is looking to you to save the world.")

choice = 1

while choice != 0

output("What do you want to do?")

output("Pick a number corresponding to your action.")

output("0 - Go Home?")

output("1 - Fight the Dragon?")

output("2 - Save the Princess?")

choice = input()

if choice == 0

output("Wimp.")

exit loop

else if choice == 1

output("You win!")

else if choice == 2

output("You saved the princess")

else

output("Your choice does not make sense.")

7.

mapsize = 10

map[mapsize][mapsize]

white = 0

blue = 1

green = 2

black = 3

yellow = 5

rx = 0, ry = 0 //robot's inital pos

while map[rx][ry] != yellow

if map[rx][ry] == white

move forward //assume predefined

if map[rx][ry] == blue

turn left //assume predefined

move forward

if map[rx][ry] == green

turn right //assume predefined

move forward

if map[rx][ry] == black

turn right

turn right

move forward

move forward //moves back 2 steps