**Andrew Wang**

**Homework 5**

1. **Code:**

################

# Author: Andrew Wang

# Date: 10/13/2019

# This program that gives simple math quizes and allows user to input the answer and displays if

# the answer is correct or not.

#################

import random

#Randomly generates two number

number1 = random.randint(0,999)

number2 = random.randint(0,999)

print('%5d' %number1)

print('+%4d' %number2)

#Allows user to input answer

input\_sum = int(input('Enter sum of numbers: '))

#If statement that determines if the user answers correctly or not

if input\_sum == (number1 + number2):

print('Correct answer - Good Work!')

else:

print('Incorrect... The correct answer is: %d' %(number1 + number2))

**Output:**

**A screenshot of a social media post

Description automatically generated**

1. **Code:**

################

# Author: Andrew Wang

# Date: 10/13/2019

# This program generates a random integer in the range from 1 to 10,

# and asks the users to guess the number.

#################

import random

#Generates a random number between 1 to 10

random\_num = random.randint(1,10)

#Generates an infinite loop

while True:

#Allows the user to input a guess

guess = int(input('Enter a number between 1 and 10, or 0 to quit: '))

#If statement to determine if the guess is correct, too high, too low, or if user wants to quit.

if guess > 10 or guess < 0:

print('You guess is out of range, try again.')

elif guess == 0:

print('Thanks for playing!')

break

elif guess > random\_num:

print('Too high, try again.')

elif guess < random\_num:

print('Too low, try again.')

elif guess == random\_num:

print('Congratulations! You guessed the right number!')

print('\n')

print('A new random integer is generated.')

random\_num = random.randint(1,10)

**Output:**

**A screenshot of a cell phone

Description automatically generated**

1. **Code:**

################

# Author: Andrew Wang

# Date: 10/13/2019

# This program that lets user play the game of Rock, Paper, Scissors against the computer.

#################

import random

#Generates infinite loop

while True:

#Computer generates a random number

computer = random.randint(1,3)

#If statement to coorespond each computer choice to rock, paper or scissors

if computer == 1:

computer\_choice = 'rock'

elif computer == 2:

computer\_choice = 'paper'

elif computer == 3:

computer\_choice = 'scissors'

#Allows user to input

player = int(input('Enter 1 for rock, 2 for paper, 3 for scissors: '))

#If statement to coorespond each player choice to rock, paper or scissors

if player == 1:

player\_choice = 'rock'

elif player == 2:

player\_choice = 'paper'

elif player == 3:

player\_choice = 'scissors'

else:

player\_choice = 'something went wrong'

#If statement to determin if the player chose the correct choice.

if player >= 1 and player <= 3:

#If statement to determine who wins

if (computer == 1 and player == 1) or (computer == 2 and player == 2) or (computer == 3 and player == 3):

print('Computer chose ' +computer\_choice)

print('You chose ' +player\_choice)

print('You made the same choice as the computer. Starting over')

elif (computer == 1 and player == 2) or (computer == 2 and player == 3) or (computer == 3 and player == 1):

print('Computer chose ' +computer\_choice)

print('You chose ' +player\_choice)

print('The player wins the game.')

break

elif (computer == 1 and player == 3) or (computer == 2 and player == 1) or (computer == 3 and player == 2):

print('Computer chose ' +computer\_choice)

print('You chose ' +player\_choice)

print('The computer wins the game.')

break

else:

print('Computer chose ' +computer\_choice)

print('You chose ' +player\_choice)

print('You made an invalid choice. No winner')

break  
  
**Output:**

**A screenshot of a social media post

Description automatically generated**

1. **Code:**

################

# Author: Andrew Wang

# Date: 10/13/2019

# This program that draws a checkboard which the user inputs the number of squares in each side

#################

import turtle

#Main function

def main():

sides = int(input('Enter the number of squares in one side: '))

turtle.setup(1000,1000)

turtle.speed(0)

width = 20

#For loop that determines the x-coordinate

for i in range(sides):

x = i\*width

#For loop that determines the y-coordinate

for j in range(sides):

y = -j\*width

#If statement that determines which square is filled with back or white

if j % 2 == 0 and i % 2 == 0:

color = 'black'

elif i % 2 != 0 and j % 2 != 0:

color = 'black'

else:

color = 'white'

drawSquare(x,y,width,color)

#This function draws a square with corresponding x,y position, width, and color.

def drawSquare(x,y,width,color):

turtle.penup()

turtle.goto(x,y)

turtle.fillcolor(color)

turtle.pendown()

turtle.begin\_fill()

#For loop that draws the square

for i in range(4):

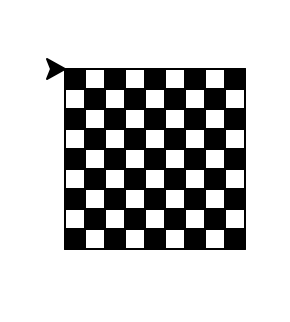
turtle.forward(width)

turtle.right(90)

turtle.end\_fill()

main()

**Output:**

****

1. **Code:**

################

# Author: Andrew Wang

# Date: 10/13/2019

# This program that draws a snowman using turtle.

#################

import turtle

#Main function

def main():

turtle.speed(0)

drawBase()

drawMidSection()

drawHead()

drawHat()

drawArms()

#This function draw the base of the snowman

def drawBase():

turtle.penup()

turtle.goto(0,-160)

turtle.pendown()

turtle.circle(80)

#This function draws the middle snowball

def drawMidSection():

turtle.penup()

turtle.goto(0,0)

turtle.pendown()

turtle.circle(60)

#This function draws the two arms

def drawArms():

#Right arm

turtle.penup()

turtle.goto(60,60)

turtle.pendown()

turtle.left(20)

turtle.forward(30)

turtle.right(20)

turtle.forward(15)

turtle.backward(15)

turtle.left(45)

turtle.forward(15)

turtle.right(45)

#Left arm

turtle.penup()

turtle.goto(-60,60)

turtle.pendown()

turtle.right(20)

turtle.backward(30)

turtle.left(130)

turtle.forward(20)

turtle.left(20)

turtle.forward(15)

turtle.backward(15)

turtle.right(25)

turtle.forward(15)

turtle.right(105)

#This function draws the head, eyes, and mouth

def drawHead():

#Draws head

turtle.penup()

turtle.goto(0,120)

turtle.pendown()

turtle.circle(40)

#Draws eyes

turtle.penup()

turtle.goto(20,170)

turtle.pendown()

turtle.circle(5)

turtle.penup()

turtle.goto(-20,170)

turtle.pendown()

turtle.circle(5)

#Draws mouth

turtle.penup()

turtle.goto(-20,140)

turtle.pendown()

turtle.forward(40)

#This function draws the hat

def drawHat():

turtle.fillcolor('black')

turtle.penup()

turtle.goto(-60,180)

turtle.pendown()

turtle.begin\_fill()

turtle.forward(120)

turtle.left(90)

turtle.forward(30)

turtle.left(90)

turtle.forward(30)

turtle.right(90)

turtle.forward(50)

turtle.left(90)

turtle.forward(60)

turtle.left(90)

turtle.forward(50)

turtle.right(90)

turtle.forward(30)

turtle.left(90)

turtle.forward(30)

turtle.left(90)

turtle.end\_fill()

main()

**Output:   
A close up of a logo

Description automatically generated**