**BIT100**

**INTRODUCTION TO PROGRAMMING**

**ASSIGNMENT 2**

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**E200312**

**Valentino Yudhistira Jehaut**

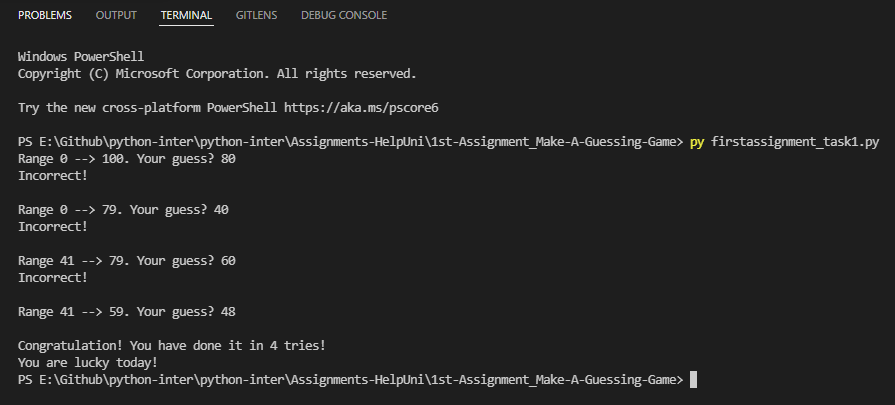
Task 1:

Source code from firstassignment\_task1.py

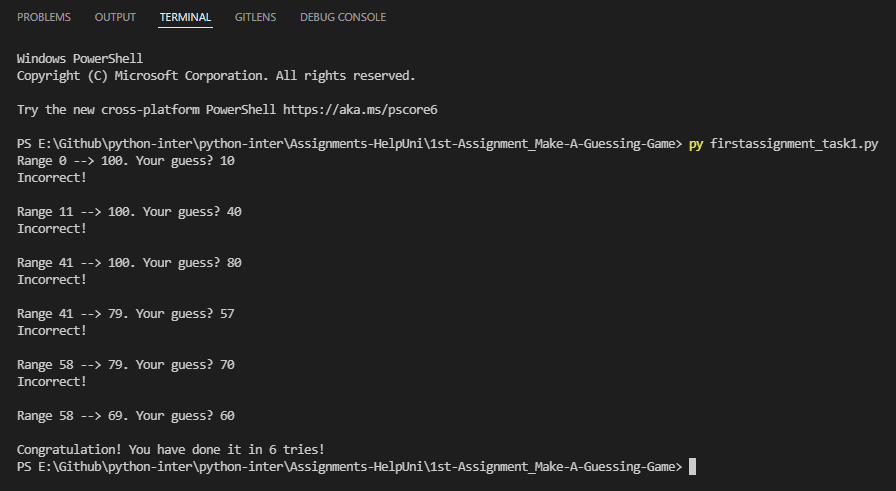
|  |
| --- |
| # Guess The Number!  # Valentino Yudhistira Jehaut  # E2100312  # Assignment 1  # Task 1  # This code is used to import the function  # "randint" from the "random library"  from random import randint  # This code is used as the main function of the game  def main():  totalGuesses = 1  low\_value,max\_value = 0,100  # This code is used to get a random number, which  # the number will be used as the answer for the game  randNum = randint(low\_value, max\_value)  # This code is used to insert the player's  # guess number for the first time  playerGuessNumber = int(input("Range "+str(low\_value)+" --> "+str(max\_value)+". Your guess? "))    # This code validates the player's answer and  # compares it with the answer of the game  while playerGuessNumber != randNum:  # This code is used to reject player's guess if  # the player's guess is above/below the current  # min & max value  if playerGuessNumber < low\_value or playerGuessNumber > max\_value:  print('Incorrect!\n')  # This code is used to increase/decrease the range  # each time the player enters their guessed number  elif playerGuessNumber < randNum:  low\_value = playerGuessNumber + 1  print('Incorrect!\n')  else:  max\_value = playerGuessNumber - 1  print('Incorrect!\n')  # This code is used to insert the player's  # guess number everytime the player's turn  playerGuessNumber = int(input("Range "+str(low\_value)+" --> "+str(max\_value)+". Your guess? "))    # This code is used to repeat the player's turn each  # time the player tries to input the guessed number  totalGuesses+=1  # This code checks the player's total guess and displays how many tries  # did the user try to get the answer. And, if the player's tries  # less than 5 tries, it will display that the player is lucky today.  if totalGuesses < 5:  print('\nCongratulation! You have done it in ' + str(totalGuesses) + ' tries!')  print('You are lucky today!')  else:  print('\nCongratulation! You have done it in ' + str(totalGuesses) + ' tries!')    main() |

Output:

If the player guesses less than 5 times:



If the player guesses more than 5 times:



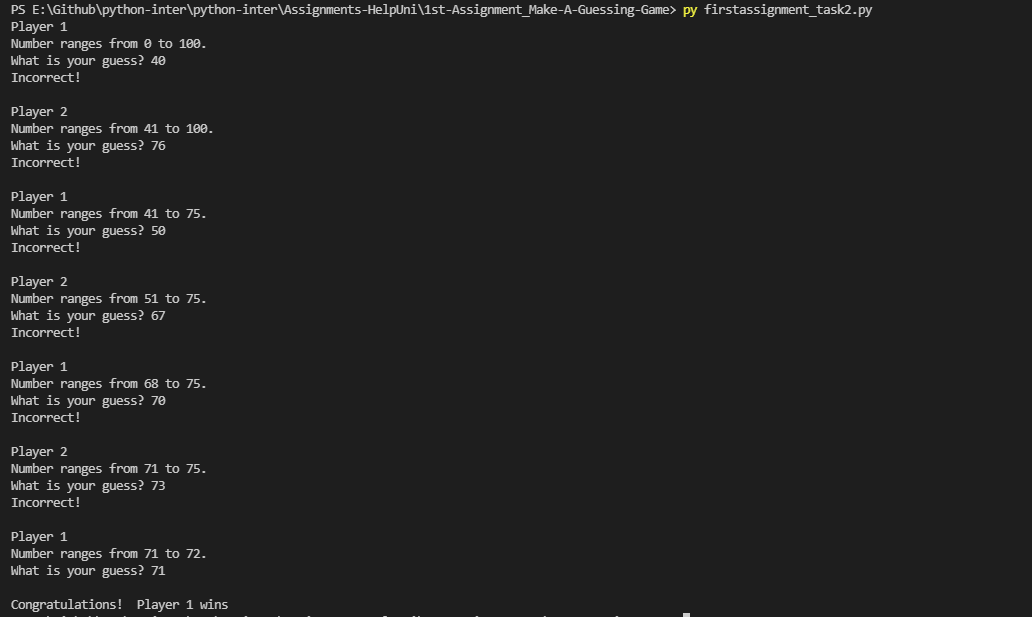
Task 2: Player vs Player

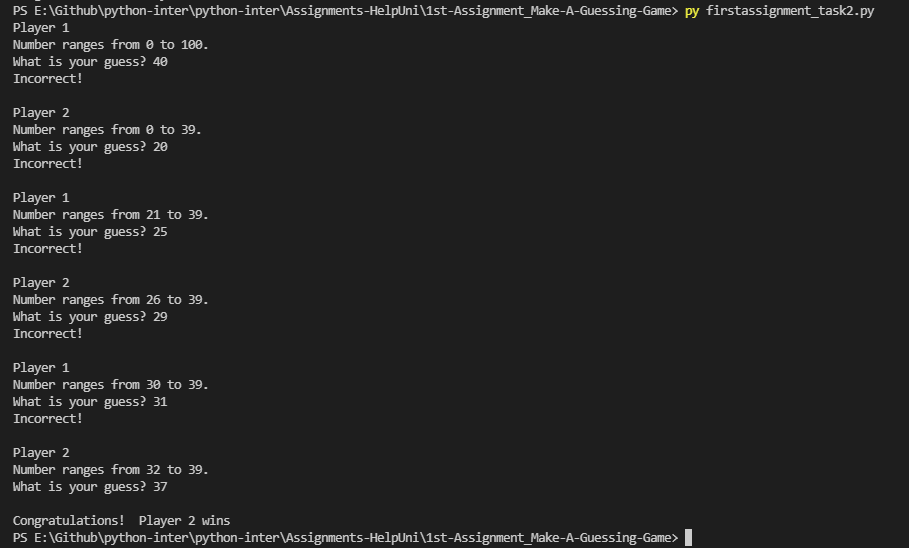
Source code from firstassignment\_task2.py

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| # This code is used to import the function  # "randint" from the "random library" from random import randint  #This code is used as the main function to run the game  def main():  player1,player2 = "Player 1","Player 2"  low\_value,max\_value = 0,100  currentPlayer = player1    # This code is used to get a random number, which  # number will be used as the answer for the game  randNum = randint(low\_value, max\_value)  # This code is used to insert the player's  # guess number for the first time  print(currentPlayer)  playerGuessNumber = int(input("Number ranges from "+str(low\_value)+" to "+str(max\_value)+".\nWhat is your guess? "))  #This code is used to run the game on loop sequence  while True:  # This code runs when the result from one of the  # players matches with the final answer from the game  if playerGuessNumber == randNum:  print("\nCongratulations! ",currentPlayer, "wins")  # This code is used to end the game  exit()    # This code is used to select when it's the first player's turn  elif currentPlayer == player1:  # This code is used to switch turns from player1  # to player2 after the game displays the result  currentPlayer = player2  # This code validates the player's answer and  # compares it with the answer of the game  if playerGuessNumber < low\_value or playerGuessNumber > max\_value:  print('Incorrect!\n')  # This code is used to increase/decrease the range  # each time player1 enters their guessed number  elif playerGuessNumber < randNum:  low\_value = playerGuessNumber + 1  print('Incorrect!\n')  else:  max\_value = playerGuessNumber - 1  print('Incorrect!\n')    # This code is used to select when it's the second player's turn  elif currentPlayer == player2:  # This code is used to switch turns from player2  # to player1 after the game displays the result  currentPlayer = player1  # This code validates the player's answer and  # compares it with the answer of the game  if playerGuessNumber < low\_value or playerGuessNumber > max\_value:  # This code will display "Incorrect" if the  # player's guess isn't the same as the answer  print('Incorrect!\n')  # This code is used to increase/decrease the  # range each time player2 enters their guessed number  elif playerGuessNumber < randNum:  low\_value = playerGuessNumber + 1  print('Incorrect!\n')  else:  max\_value = playerGuessNumber - 1  print('Incorrect!\n')    #This code displays the current player  print(currentPlayer)  # This code is used to insert the player's  # guess number everytime the player's turn  playerGuessNumber = int(input("Number ranges from "+str(low\_value)+" to "+str(max\_value)+".\nWhat is your guess? "))  main() |

Output :

If Player1 Wins:



If Player2 Wins:

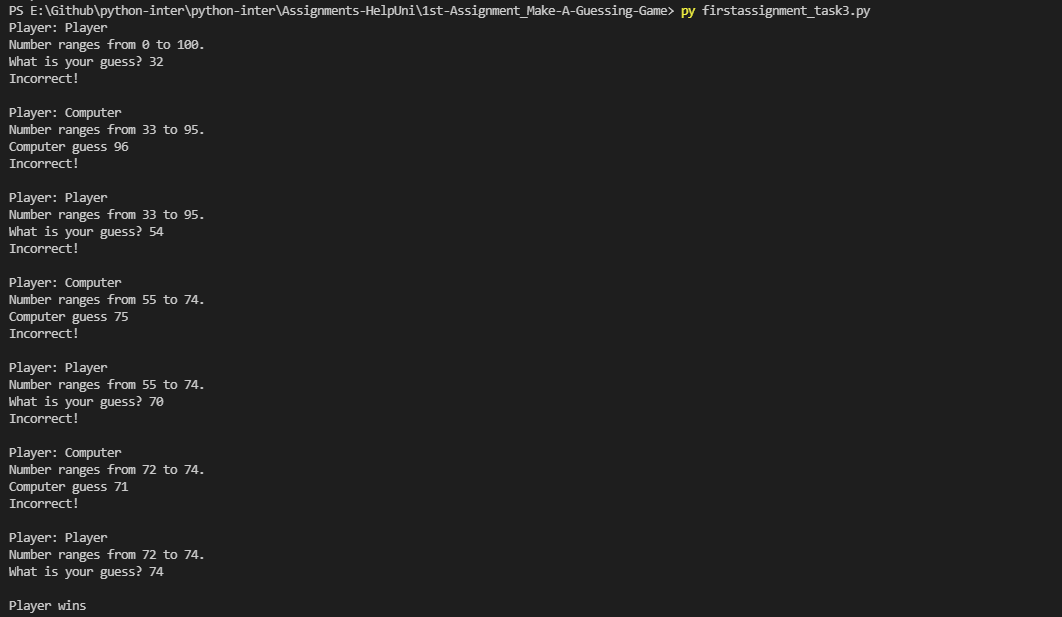
Task 3 = Player vs Computer

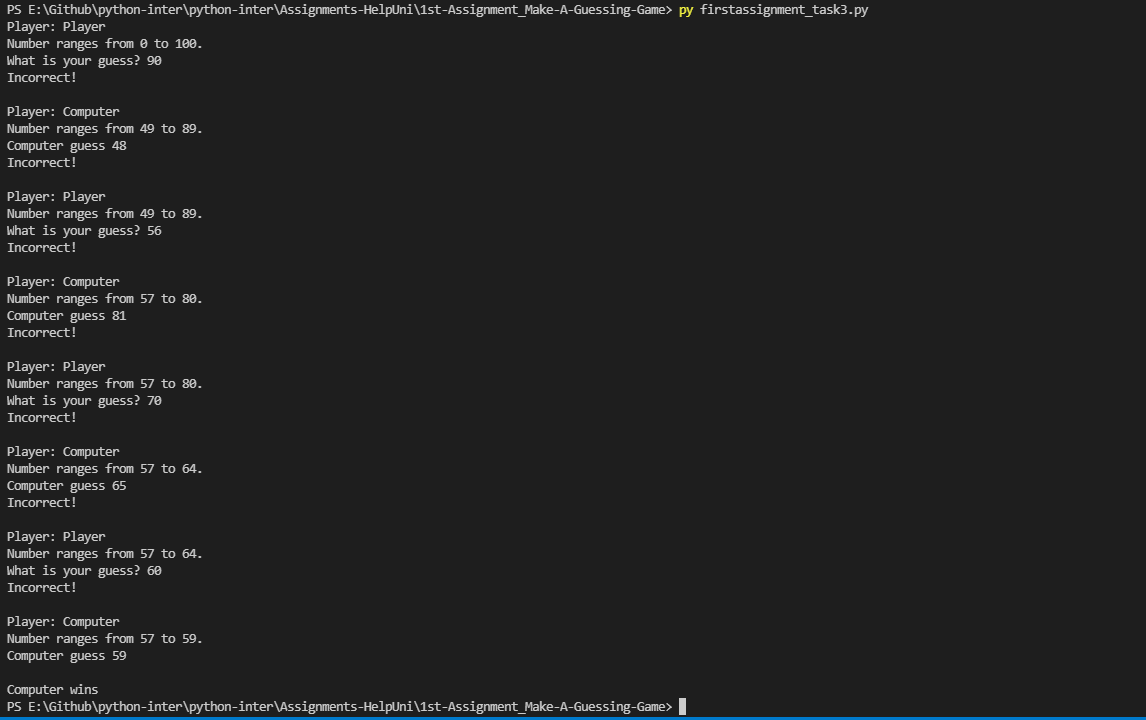
Source code from firstassignment\_task3.py

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| # This code is used to import the function  # "randint" from the "random library"  from random import randint  # This code is used as the main function to run the game  def main():  player,comp = "Player","Computer"  low\_value,max\_value = 0,100  currentUser = player  keep\_playing = "True"  # This code is used to get a random number, which number  # will be used as the answer for the game  randNum = randint(low\_value, max\_value)  # This code is used to show the prompt in which the player's  # is need to insert the guess number for the first time  print("Player: "+currentUser)  playerGuessNumber = int(input("Number ranges from "+str(low\_value)+" to "+str(max\_value)+".\nWhat is your guess? "))  # This code is used to run the game on loop sequence  while keep\_playing == "True":    # This code is used to select when it's the player's turn  if currentUser == player:  # This code is used to switch turns from player  # to computer after the game shows the results  currentUser = comp  # This code validates the player's answer and  # compares it with the answer of the game  if playerGuessNumber == randNum:  # This code is used change turns from player to  # computer after the game shows the results  currentUser = player  # This code used to show if the player wins  # the current game session  print("\n"+currentUser+" wins")  #This code is used to end the game  exit()  # This code is used to reject player's guess if the player's  # guess is above/below the current min & max value  elif playerGuessNumber < low\_value or playerGuessNumber > max\_value:  print('Incorrect!\n')  #This code is used to show the next user's turn  print('Player:',currentUser)  # This code is used to increase/decrease the range  # each time the player enters their guessed number  elif playerGuessNumber < randNum:  low\_value = playerGuessNumber + 1  print('Incorrect!\n')  print('Player:',currentUser)  else:  max\_value = playerGuessNumber - 1  print('Incorrect!\n')  print('Player:',currentUser)  # This code runs when it's the computer's turn  if currentUser == comp:  # This code is used change turns from player to computer  # after the game shows the results  currentUser = player  # This code is used for the computer to guess the  # answer from this game session  computerResult = randint(low\_value,max\_value)  # This code is used as a function for the computer to  # guess the answer from this game session  def compShow(low\_value,max\_value,computerResult):  print("Number ranges from "+str(low\_value)+" to "+str(max\_value)+".")  print('Computer guess',computerResult)  # This code validates the computer's answer  # and compares it with the answer of the game  if computerResult == randNum:  # This code is used change turns from computer  # to player after the game shows the results  currentUser = comp  # This code function is used for the computer  # to guess the answer from this game session  compShow(low\_value,max\_value,computerResult)  #This code used to show if the computer wins the game  print("\n"+currentUser+" wins")  #This code is used to end the game  exit()    # This code is used to reject computer's guess if the  # min & max value is above the current min & max value  elif computerResult < low\_value or computerResult > max\_value:  compShow(low\_value,max\_value,computerResult)  # This code will display "Incorrect" if the  # computer's guess isn't the same as the answer  print('Incorrect!\n')  #This code is used to show the next user's turn  print('Player:',currentUser)  # This code is used to increase/decrease the range  # each time the computer enters their guessed number  elif computerResult < randNum:  low\_value = computerResult + 1  compShow(low\_value,max\_value,computerResult)  print('Incorrect!\n')  print('Player:',currentUser)  else:  max\_value = computerResult - 1  compShow(low\_value,max\_value,computerResult)  print('Incorrect!\n')  print('Player:',currentUser)  # This code is used to insert the player's  # guess number every time it’s the player's turn  playerGuessNumber = int(input("Number ranges from "+str(low\_value)+" to "+str(max\_value)+".\nWhat is your guess? "))  main() |

Output:

If Player Wins:



If Computer Wins:

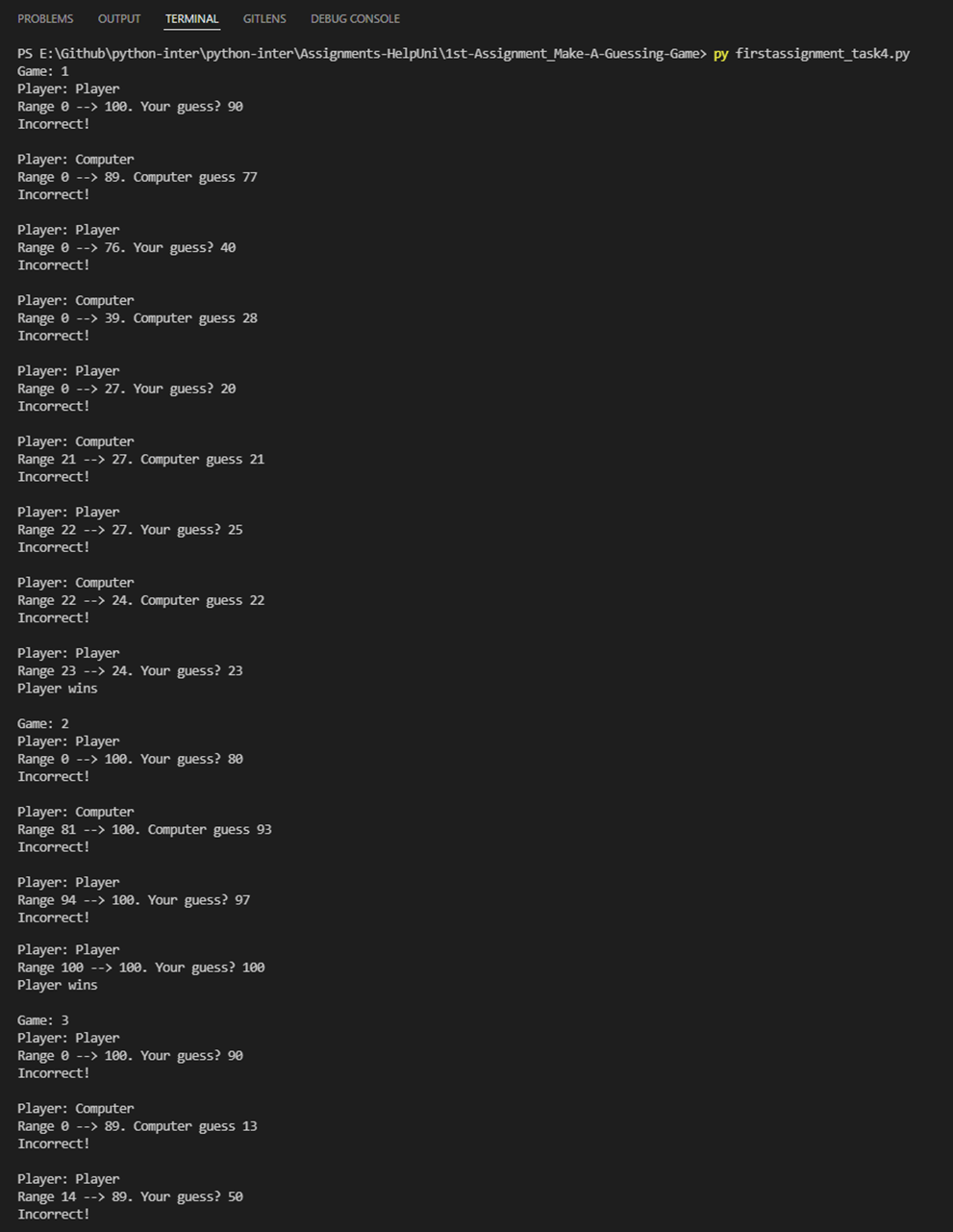
Task 4 = Player vs Computer with Game Sessions

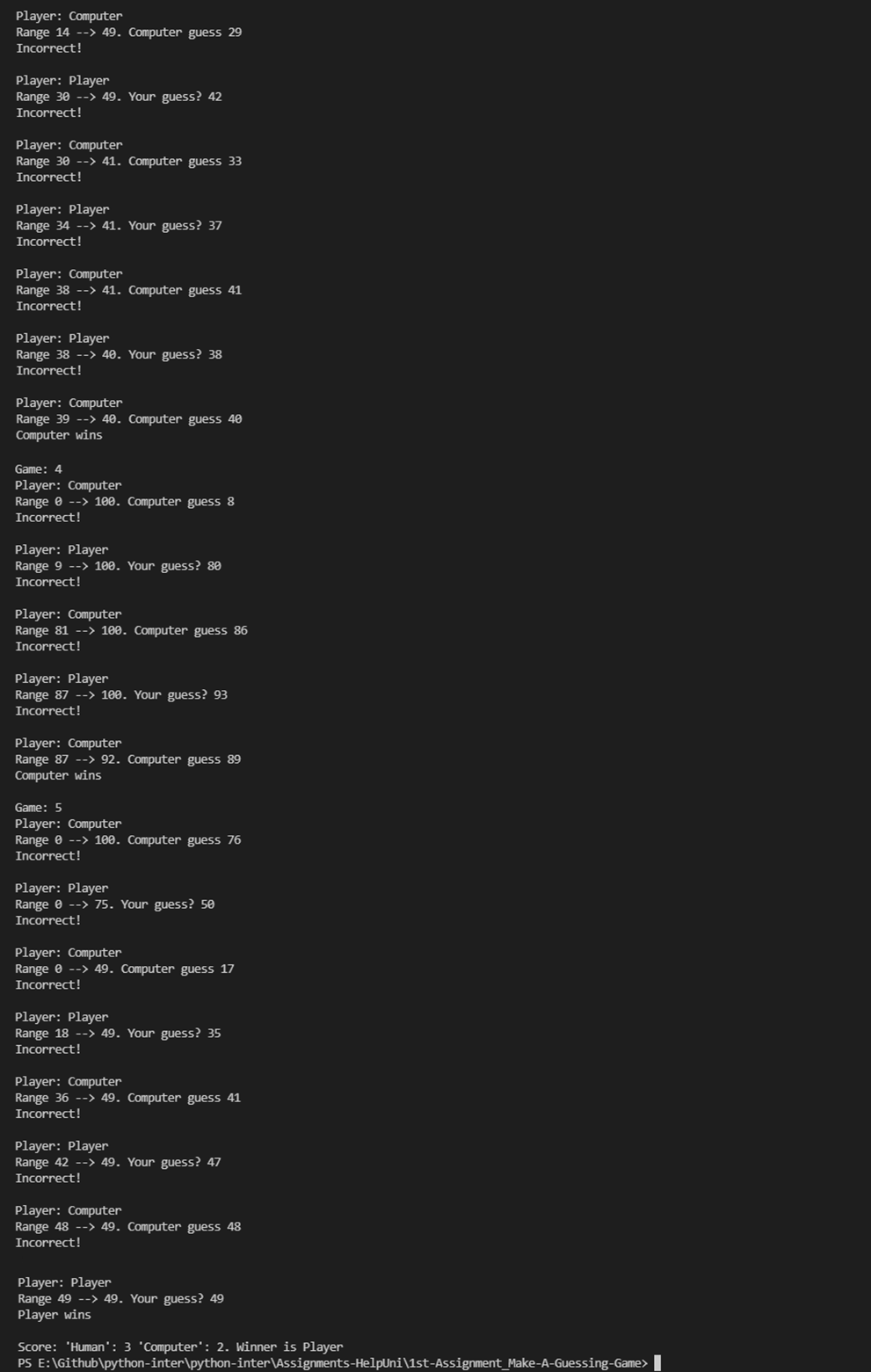
Source code from firstassignment\_task4.py

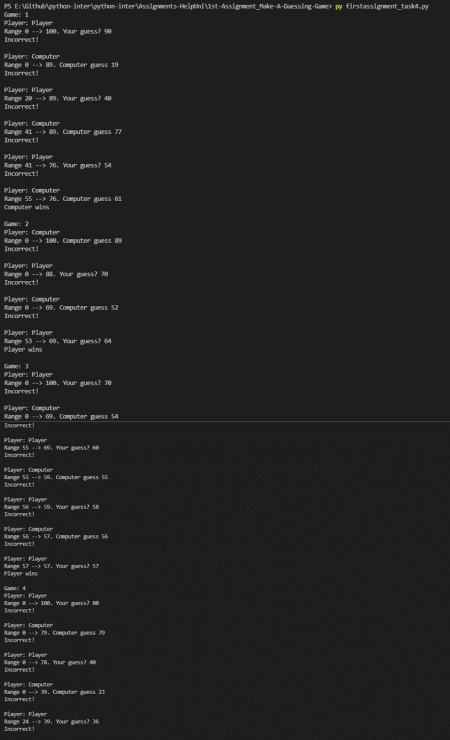
|  |
| --- |
| # This code is used to import the function "randint"  # from the "random library"  from random import randint  # This code is used as the  # main function to run the game  def main():  var\_game = 1  player,comp = "Player","Computer"  currentPlayerScore = 0  currentCompScore = 0  theWinner = player  keep\_playing = "True"  # This code is used to run the game on loop sequence  while keep\_playing == "True":  currentGuess = -1  totalCounts = 0  low\_value,max\_value = 0,100  # This code is used to get a random number, which number will  # be used as the answer for the current game session  randomNumber = randint(low\_value, max\_value)  # This code displays the current game session  print("Game:",str(var\_game))  # This code is used to run the game if the player/computer  # guessed number isn't the same as the answer  while currentGuess != randomNumber:    # This code is used to switch positions if the player wins  if theWinner == player:  # This code is used to detect if the  # current turn is player or computer  if totalCounts%2 == 0:  currentUser = player  else:  currentUser = comp    # This code is used to switch positions if the player wins  else:  # This code is used to detect if the  # current turn is player or computer  if totalCounts%2 == 0:  currentUser = comp  else:  currentUser = player    # This code displays the current user and the range of the answer  print("Player:",currentUser)  print("Range "+str(low\_value)+" --> "+str(max\_value)+".",end = ' ')  # This code is used to ask the player/computer for input which  # will be used to guess the answer from this game session  if currentUser == player:  # This code is used for the player to guess the answer  # from this game session  currentGuess = eval(input("Your guess? "))  elif currentUser == comp:    # This code is used for the computer to guess the answer  # from this game session  currentGuess = randint(low\_value,max\_value)  print("Computer guess "+str(currentGuess))    # This code is used to increase/decrease the range each  # time the player/computer enters their guessed number  if currentGuess < randomNumber:  low\_value = currentGuess + 1  if currentGuess > randomNumber:  max\_value = currentGuess - 1  # This code is used to display "Incorrect" if the player/computer  # guessed number isn't the same as the answer  if currentGuess != randomNumber:  print("Incorrect!\n")  # This code is used to repeat the turn if the player/computer  # has entered their answer  totalCounts = totalCounts + 1  # This code used to show if the player/computer wins the  # current game session  print(currentUser,"wins\n")  # This code is used to get the Winner of the current game session  # and the winner of the current game session will be the first to  # start at the next game session  theWinner = currentUser    # This code is used to add a score whenever  # the player/computer wins on each turn  if currentUser == player:  currentPlayerScore = currentPlayerScore + 1  elif currentUser == comp:  currentCompScore = currentCompScore + 1  # This code is used if the player/computer score is already 3 turns  if currentPlayerScore == 3 or currentCompScore == 3:    # This code displays the total score of both  # the player and the computer  print("Score: 'Human': "+str(currentPlayerScore)+" 'Computer': "+str(currentCompScore)+".",end = ' ')  # This code is used to decide the Winner and displays the  # final decision if one of them is the Winner  if currentPlayerScore > currentCompScore:  print("Winner is Player")  else:  print("Winner is Computer")    #This code is used to end the game  keep\_playing = "False"  # This code is used to repeat the game session if the  # player/computer turn is already done  var\_game+=1    main() |

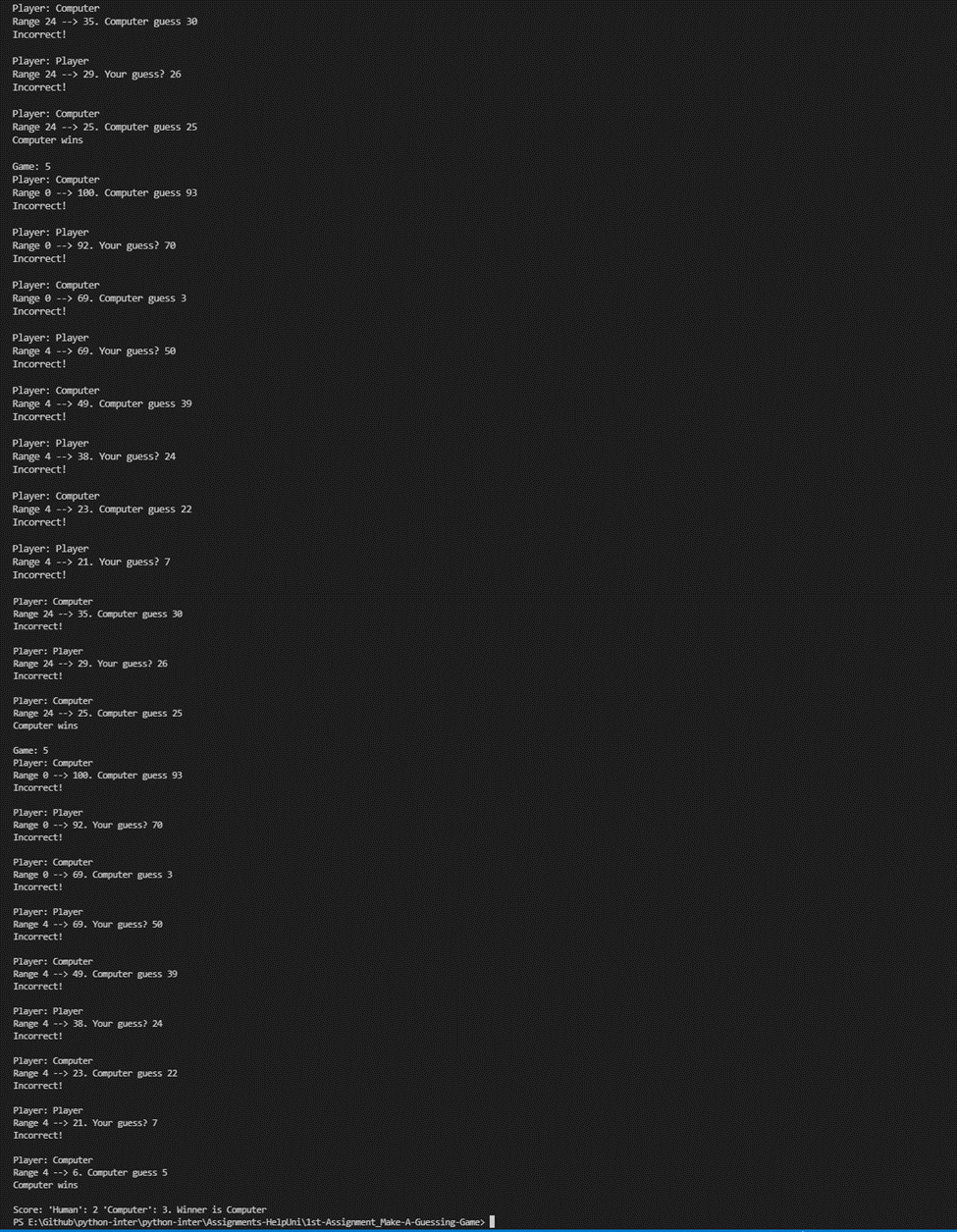
Output:

If Player Wins:





If Computer Wins:



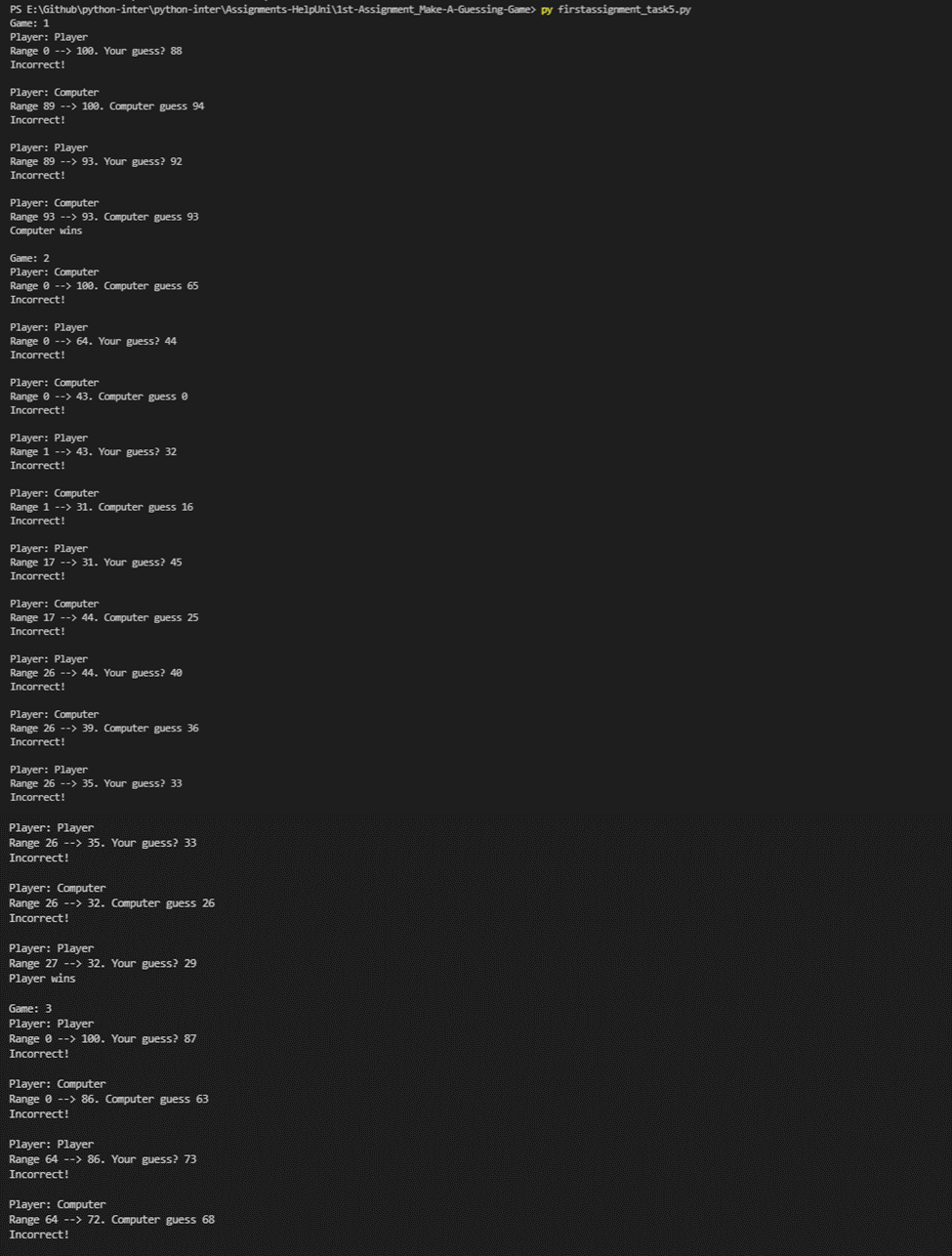
Task 5 = Player vs Computer with Game Sessions and using custom functions

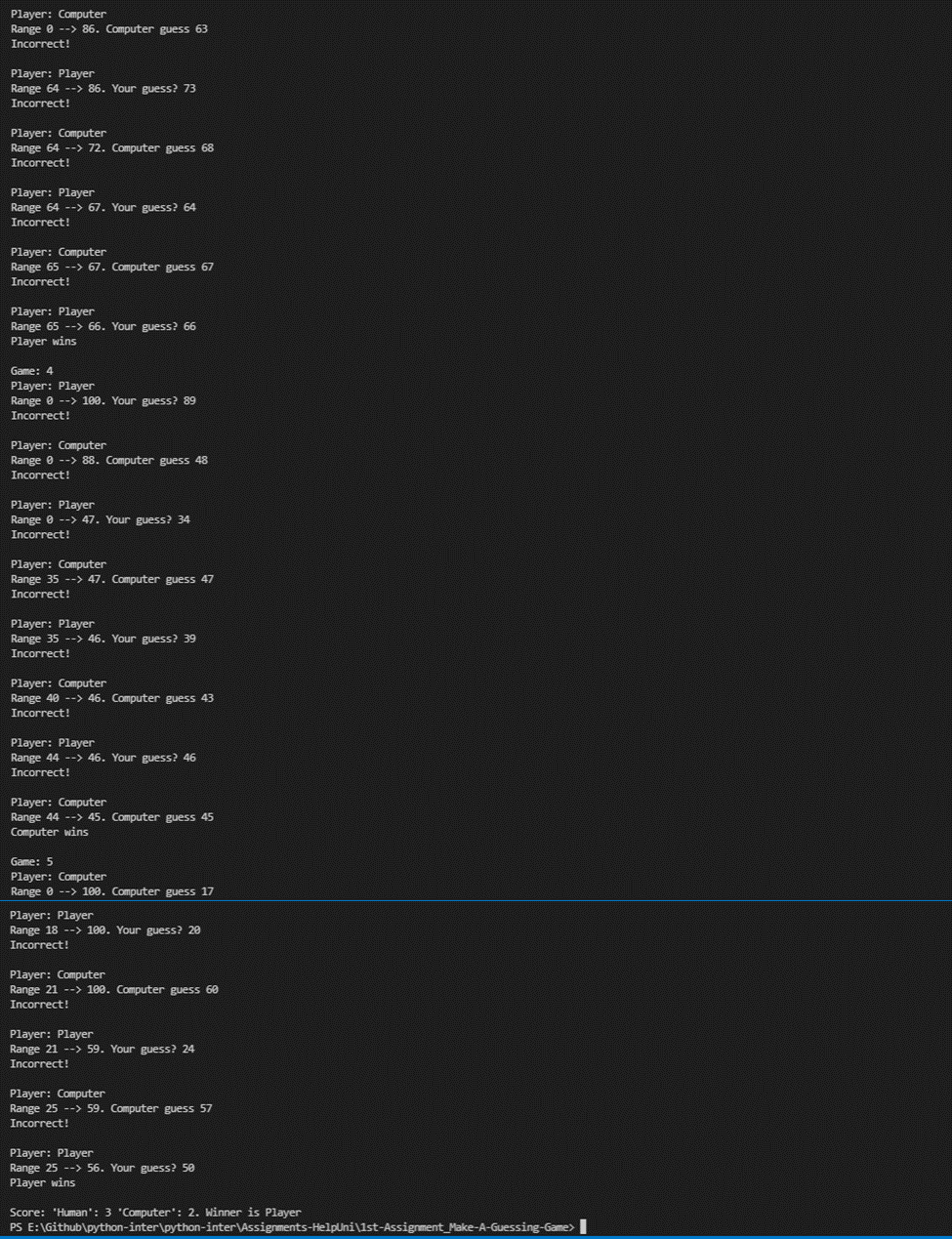
Source code from firstassignment\_task5.py

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| # This code is used to import the function "randint"  # from the "random library"  from random import randint  # This code is used as a function to display input for  # players or display input from the computer based on  # the current turn  def dealWithATurn(currentPlayer,start,end):  # This code displays the current user  # and the range of the answer  print("Player:",currentPlayer)  print("Range "+str(start)+" --> "+str(end)+".",end = ' ')  # This code is used to ask the player/computer for input which  # will be used to guess the answer from this game session  if currentPlayer == "Player":  currentGuess = eval(input("Your guess? "))  elif currentPlayer == "Computer":  # This code is used for the computer to guess  # the answer from this game session  currentGuess = randint(start,end)  print("Computer guess "+str(currentGuess))  # This code is used to get the current guess of  # player/computer and returns the guess to the main function  return currentGuess  # This code is used as a function to display the total score of  # player/computer from all the game sessions and displays the  # result if one of them is the winner in this game.  def displayFinalResult(currentPlayerScore,currentCompScore):  #This code displays the total score of  # both the player and the computer  print("Score: 'Human': "+str(currentPlayerScore)+" 'Computer': "+str(currentCompScore)+".",end = ' ')  # This code is used to decide the winner and  # displays the final decision if one of them  # is the winner  if currentPlayerScore > currentCompScore:  print("Winner is Player")  else:  print("Winner is Computer")  # This code is used as the  # main function to run the game  def main():  var\_game = 1  currentPlayerScore = 0  currentCompScore = 0  player = "Player"  comp = "Computer"  keep\_playing = "True"  theWinner = player  # This code is used to run the game on loop sequence  while keep\_playing == "True":  currentGuess = -1  totalCounts = 0  start,end = 0,100  # This code is used to get a random number, which number will  # be used as the answer for the current game session  randomNumber = randint(start, end)  # This code displays the current game session  print("Game:",str(var\_game))  # This code is used to run the game if the player/computer  # guessed number isn't the same as the answer  while currentGuess != randomNumber:    # This code is used to switch positions if the player wins  if theWinner == player:  # This code is used to detect if the  # current turn is player or computer  if totalCounts%2 == 0:  currentPlayer = player  else:  currentPlayer = comp  # This code is used to switch positions if the computer wins  else:  # This code is used to detect if the  # current turn is player or compute  if totalCounts%2 == 0:  currentPlayer = comp  else:  currentPlayer = player  # This code function is used to display the last score  # of the player/computer and display the result  # if one of them is the winner in this game.  currentGuess = dealWithATurn(currentPlayer,start,end)  # This code is used to increase/decrease the range each  # time the player/computer enters their guessed number  if currentGuess < randomNumber:  start = currentGuess + 1  if currentGuess > randomNumber:  end = currentGuess - 1  # This code is used to display "Incorrect" if the player/  # computer guessed number isn't the same as the answer  if currentGuess != randomNumber:  print("Incorrect!\n")  # This code is used to repeat the turn if the player/computer  # has entered their answer  totalCounts = totalCounts + 1    # This code used to show if the player/computer wins the  # current game session  print(currentPlayer,"wins\n")  # This code is used to get the Winner of the current game session  # and the winner of the current game session will be the first  # to start at the next game session  theWinner = currentPlayer  # This code is used to add a score whenever  # the player/computer wins on each turn  if currentPlayer == player:  currentPlayerScore = currentPlayerScore + 1  elif currentPlayer == comp:  currentCompScore = currentCompScore + 1  #This code is used if the player/computer score is already 3 turns  if currentPlayerScore == 3 or currentCompScore == 3:  # This code function is used to display the total score of  # player/computer from all the game sessions and displays  # the result if one of them is the winner in this game.  displayFinalResult(currentPlayerScore,currentCompScore)  #This code is used to end the game  keep\_playing = "False"  # This code is used to repeat the game session if the  # player/computer turn is already done  var\_game+=1  main() |

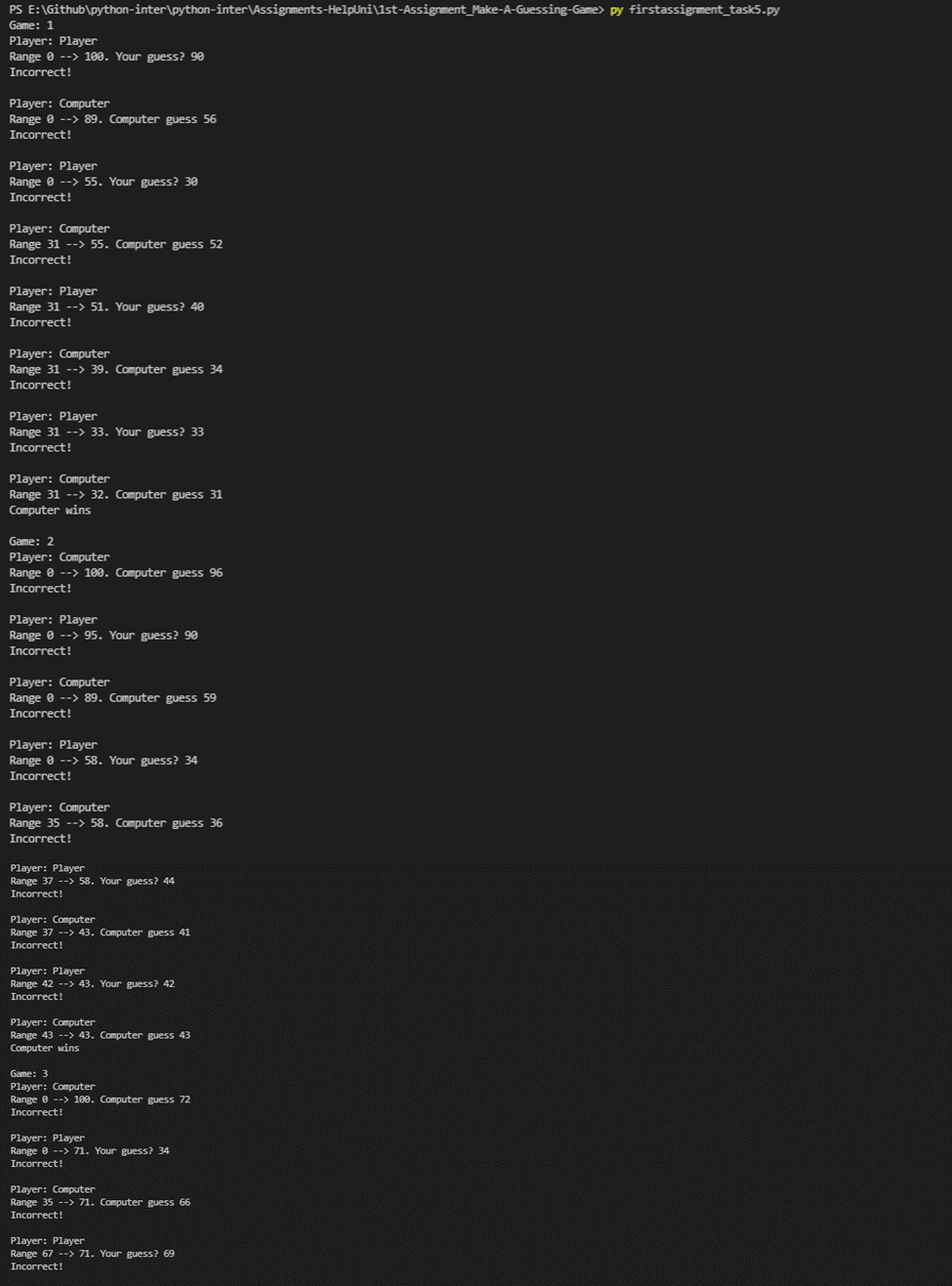
Output:

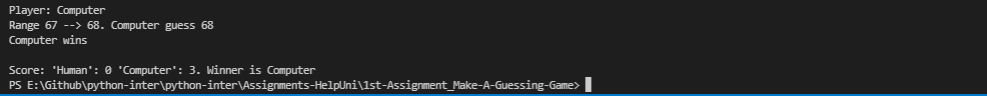
If Player Wins :





If Computer Wins :





Question 2 (Based on task 2):

Analysis:

In this program, the program will be named as “Number Guessing Game”. “Number Guessing Game” is a game with the aim of the player guessing the right number. In this game, the game has 2 players in which the players will take turns to guess the right number from 1 to 100 and each time they guessing the final answer, the range of the guessing game will be closer to the final answer of the game. And each time they’re trying to guess the final answer, if their guessed number isn’t the same as the final answer. The game will tell the player that their guessed number is incorrect and their turn moves to the next player. But, if one of the players guessed the final answer first, the player will be declared as the winner of the game.

Determine Specifications:

All of the players need to input their guessed number based on the determined range.

Input

The determined range will be closer to the final answer each time the player inputs their guessed number

Process

If the player’s guessed number is the same as the final answer, it will display “Congratulations! (current player) wins" to the player since the player won the game.

Output

If the player’s guessed number is not the same as the final answer, it will display “Incorrect!” and their turn will move to the next player.

Design:

Prompts the user for input (User’s guessed number)

Process it to

Testing:

Operation & Maintenance: