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| Assignment #  Winter-2025 |
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| January 26  Course Title: Programming Principles  Course Code: PROG10004  Authored by:  Student Name: Muhammad Mukry Student Number: 991798855 |

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# Assignment Problems Week #1

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| Question #: Assignment1\_Exercises   1. Use of Random and Math Module:   Write a program in python to simulate a game called MyGame.py. In this game you will use three variables called player1, player2 and player3. Each player rolls a dice, which means that the variables are initialized with random integers ranging from 1 to 6. Compare the values of player1, player2 and player3 to find the highest value. Print that highest value. Use comments and import statements wherever applicable. Give screenshots of the code, output and git repository containing this program.   1. Use of Arithmetic Operators and Git repositories   Implement the following as version2 of problem 1 given in this document. Suppose all players in problem1 roll the dice two times. The score of each player is the sum of the previous and current value on the dice. The program should print the highest score. Use comments and import statements wherever applicable. Provide screenshots of the code, output and git repository   1. Program logic and Arithmetic Operators   Implement the following as version 3 and add the code to computer average score of all three players in problem 2. The average will be calculated and printed twice. Once using ‘/’ operator and then using ‘//’ operator. For example:  average1= (player1+ player2+player3)/3 # average using ‘/’ operator  average2= (player1+player2+player3)//3 # average using ‘//’ operator  Explain your observations. Remove the parenthesis from the equations and print average1 and average2 again. Give screenshots of the code, outputs and the git repository   1. User inputs and concatenation   Write a program called greet.py that asks the user to type their name and store it in a variable called name. The program should print a greeting for the user. For example, if the user’s name is Joe, the program should print “Good Morning Joe”. Use comments wherever applicable. Explain your logic. Create a version2 of this problem in your git repository. In version2 you should print the message three times. Give screenshots of the code, outputs and the git repository Flowchart (if applicable): Draw a flowchart of your problem and give a title to your figure. For example, your problem is to calculate average sales, then figure title would be “Fig1. Flowchart of average sales”  A diagram of a game  Description automatically generated  A diagram of a work flow  Description automatically generated  Fig #. Flowchart of the MyGame.py Python Code: MyGame.py  import random *#importing random from the general library*  class MyGame():    *#Printing welcome and taking input for each player's name*      print("Welcome to my game")      Player1 = input("Enter the name for Player 1: ")      Player2 = input("Enter the name for Player 2: ")      Player3 = input("Enter the name for Player 3: ")  *#Taking input for first player and printing the first player's value*      input(f'Player1 ({Player1}): Please press enter to roll your dice')      Player1\_dicevalue = random.randint(1, 6)      print(f'Player1 value: {Player1\_dicevalue}')  *#Taking input for second player and printing the second player's value*      input(f'Player2 ({Player2}): Please press enter to roll your dice')      Player2\_dicevalue = random.randint(1, 6)      print(f'Player2 value: {Player2\_dicevalue}')  *#Taking input for third player and printing the third player's value*      input(f'Player3 ({Player3}): Please press enter to roll your dice')      Player3\_dicevalue = random.randint(1, 6)      print(f'Player3 value: {Player3\_dicevalue}')  *#Comparing Player 1's dice value with Player 2's and Player 3's*      if Player1\_dicevalue > Player2\_dicevalue and Player1\_dicevalue > Player3\_dicevalue:          print(f'Player1 ({Player1}) with the value of {Player1\_dicevalue}: wins the game')    *#Comparing Player 2's dice value with Player 1's and Player 3's*      elif Player2\_dicevalue > Player1\_dicevalue and Player2\_dicevalue > Player3\_dicevalue:          print(f'Player2 ({Player2})  with the value of {Player2\_dicevalue}: wins the game')  *#Comparing Player 3's dice value with Player 2's and Player 1's*      elif Player3\_dicevalue > Player1\_dicevalue and Player3\_dicevalue > Player2\_dicevalue:          print(f'Player3 ({Player3})  with the value of {Player3\_dicevalue}: wins the game')  *#Checking if player 1's dice value equals*      elif (Player1\_dicevalue == Player2\_dicevalue) and (Player2\_dicevalue > Player3\_dicevalue):          print(f'Tie between Player 1 ({Player1}) and Player 2 ({Player2}) with the value of {Player1\_dicevalue}: ')      elif (Player1\_dicevalue == Player3\_dicevalue) and (Player3\_dicevalue > Player2\_dicevalue):          print(f'Tie between Player 1 ({Player1}) and Player 3 ({Player3}) with the value of {Player3\_dicevalue}: ')      elif (Player2\_dicevalue == Player3\_dicevalue) and (Player2\_dicevalue > Player1\_dicevalue):          print(f'Tie between Player 2 ({Player2}) and Player 3 ({Player3}) with the value of {Player3\_dicevalue}: ')      elif (Player1\_dicevalue == Player2\_dicevalue) and (Player2\_dicevalue == Player3\_dicevalue):          print(f'Tie between Player 1 ({Player1}), Player 2 ({Player2}) and Player 3 ({Player3}) with the value of {Player3\_dicevalue}: ') |
| Output: **MyGame.py**  Paste the screenshot of your output here   Repository (if applicable): State your git repository and give a screenshot of the directory contents (if applicable)    [**Semester-2-programming-assignment-1/MyGame.py at main · mhmukry/Semester-2-programming-assignment-1**](https://github.com/mhmukry/Semester-2-programming-assignment-1/blob/main/MyGame.py)  **MyGame\_version2.py** Python Code: import random  class MyGame\_version2():          print("Welcome to my game")      Player1 = input("Enter the name for Player 1: ")      Player2 = input("Enter the name for Player 2: ")      Player3 = input("Enter the name for Player 3: ")        input(f'Player1 ({Player1}): Please press enter to roll your dice')      Player1\_dicevalue1 = random.randint(1, 6)      print(f'Player1 value: {Player1\_dicevalue1}')      input(f'Player2 ({Player2}): Please press enter to roll your dice')      Player2\_dicevalue1 = random.randint(1, 6)      print(f'Player2 value: {Player2\_dicevalue1}')      input(f'Player3 ({Player3}): Please press enter to roll your dice')      Player3\_dicevalue1 = random.randint(1, 6)      print(f'Player3 value: {Player3\_dicevalue1}')      input(f'Player1 ({Player1}): Please press enter to roll your dice')      Player1\_dicevalue2 = random.randint(1, 6)      print(f'Player1 value: {Player1\_dicevalue2}')      input(f'Player2 ({Player2}): Please press enter to roll your dice')      Player2\_dicevalue2 = random.randint(1, 6)      print(f'Player2 value: {Player2\_dicevalue2}')      input(f'Player3 ({Player3}): Please press enter to roll your dice')      Player3\_dicevalue2 = random.randint(1, 6)      print(f'Player3 value: {Player3\_dicevalue2}')      Player1\_total\_dicevalue = Player1\_dicevalue1 + Player1\_dicevalue2      Player2\_total\_dicevalue = Player2\_dicevalue1 + Player2\_dicevalue2      Player3\_total\_dicevalue = Player3\_dicevalue1 + Player3\_dicevalue2      if Player1\_total\_dicevalue > Player2\_total\_dicevalue and Player1\_total\_dicevalue > Player3\_total\_dicevalue:          print(f'Player1 ({Player1}) with the total value of {Player1\_total\_dicevalue}: wins the game')        elif Player2\_total\_dicevalue > Player1\_total\_dicevalue and Player2\_total\_dicevalue > Player3\_total\_dicevalue:          print(f'Player2 ({Player2})  with the total value of {Player2\_total\_dicevalue}: wins the game')      elif Player3\_total\_dicevalue > Player1\_total\_dicevalue and Player3\_total\_dicevalue > Player2\_total\_dicevalue:          print(f'Player3 ({Player3})  with the total value of {Player3\_total\_dicevalue}: wins the game')      elif (Player1\_total\_dicevalue == Player2\_total\_dicevalue) and (Player2\_total\_dicevalue > Player3\_total\_dicevalue):          print(f'Tie between Player 1 ({Player1}) and Player 2 ({Player2}) with the total value of {Player1\_total\_dicevalue}: ')      elif (Player1\_total\_dicevalue == Player3\_total\_dicevalue) and (Player3\_total\_dicevalue > Player2\_total\_dicevalue):          print(f'Tie between Player 1 ({Player1}) and Player 3 ({Player3}) with the total value of {Player3\_total\_dicevalue}: ')      elif (Player2\_total\_dicevalue == Player3\_total\_dicevalue) and (Player2\_total\_dicevalue > Player1\_total\_dicevalue):          print(f'Tie between Player 2 ({Player2}) and Player 3 ({Player3}) with the total value of {Player3\_total\_dicevalue}: ')      elif (Player1\_total\_dicevalue == Player2\_total\_dicevalue) and (Player2\_total\_dicevalue == Player3\_total\_dicevalue):          print(f'Tie between Player 1 ({Player1}), Player 2 ({Player2}) and Player 3 ({Player3}) with the total value of {Player3\_total\_dicevalue}: ')  Paste the screenshot of your output here   Repository (if applicable): State your git repository and give a screenshot of the directory contents (if applicable)    [**Semester-2-programming-assignment-1/MyGame\_version2.py at main · mhmukry/Semester-2-programming-assignment-1**](https://github.com/mhmukry/Semester-2-programming-assignment-1/blob/main/MyGame_version2.py)  **MyGame\_version3.py** Python Code: import random  class MyGame\_version3():          print("Welcome to my game")      Player1 = input("Enter the name for Player 1: ")      Player2 = input("Enter the name for Player 2: ")      Player3 = input("Enter the name for Player 3: ")        input(f'Player1 ({Player1}): Please press enter to roll your dice')      Player1\_dicevalue1 = random.randint(1, 6)      print(f'Player1 value: {Player1\_dicevalue1}')      input(f'Player2 ({Player2}): Please press enter to roll your dice')      Player2\_dicevalue1 = random.randint(1, 6)      print(f'Player2 value: {Player2\_dicevalue1}')      input(f'Player3 ({Player3}): Please press enter to roll your dice')      Player3\_dicevalue1 = random.randint(1, 6)      print(f'Player3 value: {Player3\_dicevalue1}')      input(f'Player1 ({Player1}): Please press enter to roll your dice')      Player1\_dicevalue2 = random.randint(1, 6)      print(f'Player1 value: {Player1\_dicevalue2}')      input(f'Player2 ({Player2}): Please press enter to roll your dice')      Player2\_dicevalue2 = random.randint(1, 6)      print(f'Player2 value: {Player2\_dicevalue2}')      input(f'Player3 ({Player3}): Please press enter to roll your dice')      Player3\_dicevalue2 = random.randint(1, 6)      print(f'Player3 value: {Player3\_dicevalue2}')      Player1\_total\_dicevalue = Player1\_dicevalue1 + Player1\_dicevalue2      Player2\_total\_dicevalue = Player2\_dicevalue1 + Player2\_dicevalue2      Player3\_total\_dicevalue = Player3\_dicevalue1 + Player3\_dicevalue2      average1 = (Player1\_total\_dicevalue + Player2\_total\_dicevalue + Player3\_total\_dicevalue)/3      average2 = (Player1\_total\_dicevalue + Player2\_total\_dicevalue + Player3\_total\_dicevalue)//3      print(f'average1 = (Player1\_total\_dicevalue + Player2\_total\_dicevalue + Player3\_total\_dicevalue)/3 is :{average1} ')      print(f'average2 = (Player1\_total\_dicevalue + Player2\_total\_dicevalue + Player3\_total\_dicevalue)//3 is :{average2} ')      if Player1\_total\_dicevalue > Player2\_total\_dicevalue and Player1\_total\_dicevalue > Player3\_total\_dicevalue:          print(f'Player1 ({Player1}) with the total value of {Player1\_total\_dicevalue}: wins the game')        elif Player2\_total\_dicevalue > Player1\_total\_dicevalue and Player2\_total\_dicevalue > Player3\_total\_dicevalue:          print(f'Player2 ({Player2})  with the total value of {Player2\_total\_dicevalue}: wins the game')      elif Player3\_total\_dicevalue > Player1\_total\_dicevalue and Player3\_total\_dicevalue > Player2\_total\_dicevalue:          print(f'Player3 ({Player3})  with the total value of {Player3\_total\_dicevalue}: wins the game')      elif (Player1\_total\_dicevalue == Player2\_total\_dicevalue) and (Player2\_total\_dicevalue > Player3\_total\_dicevalue):          print(f'Tie between Player 1 ({Player1}) and Player 2 ({Player2}) with the total value of {Player1\_total\_dicevalue}: ')      elif (Player1\_total\_dicevalue == Player3\_total\_dicevalue) and (Player3\_total\_dicevalue > Player2\_total\_dicevalue):          print(f'Tie between Player 1 ({Player1}) and Player 3 ({Player3}) with the total value of {Player3\_total\_dicevalue}: ')      elif (Player2\_total\_dicevalue == Player3\_total\_dicevalue) and (Player2\_total\_dicevalue > Player1\_total\_dicevalue):          print(f'Tie between Player 2 ({Player2}) and Player 3 ({Player3}) with the total value of {Player3\_total\_dicevalue}: ')      elif (Player1\_total\_dicevalue == Player2\_total\_dicevalue) and (Player2\_total\_dicevalue == Player3\_total\_dicevalue):          print(f'Tie between Player 1 ({Player1}), Player 2 ({Player2}) and Player 3 ({Player3}) with the total value of {Player3\_total\_dicevalue}: ')  Paste the screenshot of your output here Repository (if applicable): State your git repository and give a screenshot of the directory contents (if applicable)    [**Semester-2-programming-assignment-1/MyGame\_version3.py at main · mhmukry/Semester-2-programming-assignment-1**](https://github.com/mhmukry/Semester-2-programming-assignment-1/blob/main/MyGame_version3.py)  **Greet.py** Python Code: *# Class to take user name and greet the user with the good morning message*  class Greet():  *# Taking input from the user*      name = input("What is your name? ")  *# Printing Greeting message for the user*      print(f'Good Morning {name} ')  Paste the screenshot of your output here   Repository (if applicable): State your git repository and give a screenshot of the directory contents (if applicable)    [**Semester-2-programming-assignment-1/Greet.py at main · mhmukry/Semester-2-programming-assignment-1**](https://github.com/mhmukry/Semester-2-programming-assignment-1/blob/main/Greet.py)  **Greet\_version2.py** Python Code: *# Class to take user name and greet the user with the good morning message*  class Greet():  *# Taking input from the user*      name = input("What is your name? ")  *# Printing Greeting message for the user*      for i in range(3):          print(f'Good Morning {name} ')  Paste the screenshot of your output here   Repository (if applicable): State your git repository and give a screenshot of the directory contents (if applicable)    [**Semester-2-programming-assignment-1/Greet\_version2.py at main · mhmukry/Semester-2-programming-assignment-1**](https://github.com/mhmukry/Semester-2-programming-assignment-1/blob/main/Greet_version2.py)  Question #:  **Assignment1 Week1 Problem(s)** Writing Python Programs on notepad 1. Open notepad and write a program that prints your full name and student number, use the helloworld program given in textbook as example. Save the notepad file as Assign1q1.py in any directory on your harddisk and note down the path, I am assuming the file was stored in d:\ PythonPrograms. Open command prompt and run the program using the following command: C:\> python3 d:\PythonPrograms\Assign1q1.py Deliverables: 1. Report due in week3, containing the following a. Title page i. Assignment Number ii. Student Name and Number iii. Date of Submission b. Page Numbers at the bottom of each page c. Table of Contents d. Following items for every problem i. Question Number and Week Number along with Problem Statement. ii. Flow chart where applicable iii. Python Code with comments and import statements wherever applicable iv. Screenshot of output v. Git repository and version numbers where applicable e. Following items at the end of the report i. Limitations and challenges encountered ii. Conclusions iii. References if any  **Assign1q1.py** Python Code: *#Class to print student full name and student number*  *class Assign1q1:*  *#Printing student full name*  *print(f'Student full name: Muhammad Hamza Mukry')*  *#Printing student number*  *print(f'Student number:    991798855')*  Paste the screenshot of your output here   Repository (if applicable): State your git repository and give a screenshot of the directory contents (if applicable)    [**Semester-2-programming-assignment-1/Assign1q1.py at main · mhmukry/Semester-2-programming-assignment-1**](https://github.com/mhmukry/Semester-2-programming-assignment-1/blob/main/Assign1q1.py)  Question #:  A screenshot of a exercise  Description automatically generated  **Think\_Python.py** Python Code: import datetime  *#Class to test various scenarios of the Think Python exercise*  class Think\_Python:  *#Trying to solve exercise 2.2*      width = 17      height = 12.0      delimeter = '.'      print(f'width/2:{width/2}')      print(f'width/2.0:{width/2.0}')      print(f'height/3:{height/3}')      print(f'delimeter\*5:{delimeter\*5}')  *#Trying to solve exercise 2.3 Question # 1*      r = 5      volume = (4/3) \* (22/7) \* (r\*r\*r)      print(f'volume = (4/3) \* (22/7) \* (r^3):{volume}')  *#Trying to solve exercise 2.3 Question # 2*      book\_cost = 24.95      discounted\_book\_cost = 0.6 \* book\_cost      total\_discounted\_book\_cost = 60 \* discounted\_book\_cost      shipping\_cost = 3 + (59 \* 0.75)      print(f'discounted price + shipping:{shipping\_cost+ total\_discounted\_book\_cost }')  *#Trying to solve exercise 2.3 Question # 3*  *# Initializing a date and time*      date\_and\_time = datetime.datetime(2025, 1, 26, 6, 52, 0)        print("Original time:")      print(date\_and\_time)    *# Calling the timedelta() function*      time\_change = datetime.timedelta(seconds=495)      new\_time = date\_and\_time + time\_change      date\_and\_time = new\_time      print("changed time:")      print(new\_time)  *# Calling the timedelta() function*      time\_change = datetime.timedelta(seconds=432\*3)      new\_time = date\_and\_time + time\_change      date\_and\_time = new\_time  *# Printing the new datetime object*      print("changed time:")      print(new\_time)  *# Calling the timedelta() function*      time\_change = datetime.timedelta(seconds=495)      new\_time = date\_and\_time + time\_change      date\_and\_time = new\_time  *# Printing the new datetime object*      print("changed time:")      print(new\_time)  Paste the screenshot of your output here   Repository (if applicable): State your git repository and give a screenshot of the directory contents (if applicable)    [Semester-2-programming-assignment-1/Think\_Python.py at main · mhmukry/Semester-2-programming-assignment-1](https://github.com/mhmukry/Semester-2-programming-assignment-1/blob/main/Think_Python.py)  Limitations, Challenges and Assumptions (wherever applicable)  Assumptions: For MyGame, MyGame\_version2, and MyGame\_version3 the entire logic of ties and wins are dependent on the rolled dice value for each player generated through random generator method between the integer values of 1 to 6.  For Greet\_version2, I used the for loop logic to print greeting messages multiple times. |
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# Summary

I have learned how to:

1. print messages
2. how to take user input
3. how to use python random generator library
4. how to check and execute various program condition logic (if/else if/else)
5. how to use loop to repeat similar task (for loop for printing greeting message multiple times)

# References

1. Downey, A. (2012). Think python. " O'Reilly Media, Inc.".