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Python/Deep Learning CS5590

In Class Exercise 1

1) **Python 2 vs Python 3:**
   While Python 3 is future for the language, python 2 is a legacy. Python 2.x new version 2.7 was released in mid-2010 but there is a new version from python 3.x every year. There is no major development in the python 2.x. There are some intraceable changes in python 3 compared to python 2 but changes in python 3 makes easy for the programmers to learn the language. In very rare cases some of the third-party libraries doesn't support the python 3.x.
   Some of the differences in Python 2 and python 3 are:
   Print function: In python 2 the parenthesis for the print function is completely optional and in python 3, an error will be thrown if parenthesis is not used.
   Integer Division: In python 2, it is important to use the decimal point while using the dividend operator. But in python 3, it doesn't matter.
   Unicode: Python 3 uses Utf-8 and has two types of byte classes. Python 2 has ASCII, and separate Unicode but no byte type.
   Range: In python 2 we use xrange() to create a iterable object while in python 3 we use range().
   Raising Exceptions: In python 3, it is mandatory to enclose the exception arguments with parenthesis. In python 2 both notations are supported.
   Handling Exceptions: In python 3, 'as' is used as keyword for handling exceptions. In python 2, It is not used.
   Next(): next() and .next() functions can be used in python 2 but in python 3, we can only use the next() function as .next() function throws an error.
   For-Loop variables leak: In python 2 there is a leak from the for-loop. The value of the variables from the loop will be leaked and changes the value of the variable outside the loop. Thankfully, in python 3, there is no such leak.
   Input function: In Python 2, input() reads the input in other types of the datatypes. But in python 3, input( ) function directly reads the value as string. To read the input as string in python 2, we use raw_input() function.

   Code for python version:

```python
import sys #inports the sy library
print("python Version: ", sys.version) # prints the python version
```

   Output:
```
C:\Users\SaiMohith\PycharmProjects\ICP-1\venv\Scripts\python.exe "C:/Users/SaiMohith/PycharmProjects/ICP-1/python version.py"
python Version:  3.6.4 (v3.6.4:d48eceb, Dec 19 2017, 06:54:40) [MSC v.1900 64 bit (AMD64)]

Process finished with exit code 0
```

2) A) Code for Printing Reverse order of the name:

```
print("Please Enter the First Name and Last Name of the user:")
FirstName = input("Enter the First Name: ") #Reads the firtname entered by user
LastName = input("Enter the Last Name: ") #Reads the lastname entered by user
RFN = ''.join(list(reversed(FirstName))) #Reverse the firstname
RLN = ''.join(list(reversed(LastName))) #Reverse the lastname
print(RLN + RFN) #prints the firstname and lastname combined
```

Output:

```
C:\Users\SaiMohith\PycharmProjects\ICP-1\venv\Scripts\python.exe "C:/Users/SaiMohith/PycharmProjects/ICP-1/Reverse Name.py"
Please Enter the First Name and Last Name of the user:
Enter the First Name: Tom
Enter the Last Name: Riddle
 elddiR moT

Process finished with exit code 0
```

B) Code for Printing Quotient and Remainder:

```
print('Enter two numbers to compute Quotient and Remainder')
First = input("Enter First Number:") #Takes the first number from the user
Second = input("Enter Second Number:") #Takes tne second number from the user
Quotient = int(First) / int(Second) #Quotient is calculated
Remainder = int(First) % int(Second) #Remainder is calculated using modulus
print("Quotient is %f and remainder is %f" % (Quotient, Remainder)) #Prints the output
```

Output:

```
C:\Users\SaiMohith\PycharmProjects\ICP-1\venv\Scripts\python.exe C:/Users/SaiMohith/PycharmProjects/ICP-1/Q&R.py
Enter two numbers to compute Quotient and Remainder
Enter First Number: 129
Enter Second Number: 63
Quotient is 2.047619 and remainder is 3.000000

Process finished with exit code 0
```

3) **Code for Guess Game:**

```python
import random #imports the random library
randomNum = random.randint(0,9) #picks a random number between 0 and 9
GuessNumber = input("Guess the Digit:") #Users enters number to guess
guessNum = int(GuessNumber) #reads the input as integer

if randomNum == guessNum:
    print("Congratulations! Your Answer is PERFECT!") #prints if the guessed number and random number is equal
elif randomNum < guessNum:
    print("Your Answer is High than required") #prints if the randomnumber is less than guessed number
else:
    print("Your Answer is Less than required") #prints if the randomnumber is grater than guessed number
```

Output:

```
C:\Users\SaiMohith\PycharmProjects\ICP-1\venv\Scripts\python.exe "C:/Users/SaiMohith/PycharmProjects/ICP-1/Guessing Game.py"
Guess the Digit: 9
Your Answer is High than required

Process finished with exit code 0
```