TechSaksham (AI and ML Track)

Final Practical Examination Documentation

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AIM:

Q10) a) Write a Python program that prints all the numbers from 10 to 16 except 13 and 16.

b) Write a Python function to calculate the factorial of a number (a non-negative integer). The function accepts the number as an argument

c) Write a Python program to split the text sentence or paragraph into a list of words. After that remove the stop words, remove the punctuations.

CODE AND EXPLANATION:

a) Write a Python program that prints all the numbers from 10 to 16 except 13 and 16.

Code:

```
if __name__=="__main__":
    start_range=10      #setting start and end ranges as 10 and 16 respectively
    end_range=16
    print("The numbers are:- ")
    for i in range(start_range,end_range+1):    #loop to print all and skip if 13 or 16
        if (i==13 or i==16):
            continue
        else:
            print(i)
```

Explanation:

We will be using 2 variables to store the start and end range. Then will execute a for loop in that range. If 13 or 16 are encountered then we will pass it by using continue keyword. “Continue” skips the given statement in the loop and goes to next iteration.

```
if __name__=="__main__":
    start_range=10      #setting start and end ranges as 10 and 16 respectively
    end_range=16
    print("The numbers are:- ")
    for i in range(start_range,end_range+1):    #loop to print all and skip if 13 or 16
        if (i==13 or i==16):
            continue
        else:
            print(i)
```

```
The numbers are:-
10
11
12
14
15
```

Fig 10(a): Code and Output snippet

b) Write a Python function to calculate the factorial of a number (a non-negative integer). The function accepts the number as an argument.

Code:

```
def Factorial(num):                    #Function to calculate Factorial
   fact=1                              #Declaring variable to store result

   for i in range(1,num+1):            #calculating factorial using for loop
      fact=fact*i

   return fact                         #returning factorial of the given input

if __name__=="__main__":
   number=int(input("Enter the non-negative number:- "))        #Taking input from user
   if number < 0:
        print(" Factorial does not exist for negative numbers")
   elif number == 0:
        print("The factorial of 0 is 1")
   else:
      fact=Factorial(number)                    #Storing the result return by factorial function
      print("The Factorial of the given number is:-",fact)        #Displaying the output
```

Explanation:

Factorial of a number n is given by n(n-1)(n-2)(n-3)……1

Here we have created a function “Factorial” which will get the value from main(user input) as “num”. Initially “fact” variable is assigned value 1 and then a loop is executed from 1 to “num” where new value of “fact”=previous value * num. then “fact” variable is returned to main and printed out to user. If negative value is entered error message will be displayed. If zero is entered factorial is shown as 1.

```
def Factorial(num):                                 #Function to calculate Factorial
    fact=1                                          #Declaring variable to store result

    for i in range(1,num+1):                        #calculating factorial using for loop
        fact=fact*i

    return fact                                     #returning factorial of the given input



if __name__=="__main__":
    number=int(input("Enter the non-negative number:- "))           #Taking input from user
    if number < 0:
           print(" Factorial does not exist for negative numbers")
    elif number == 0:
           print("The factorial of 0 is 1")
    else:
        fact=Factorial(number)                                          #Storing the result return by factorial function
        print("The Factorial of the given number is:-",fact)            #Displaying the output
```

```
Enter the non-negative number:- 5
The Factorial of the given number is:- 120
```

Fig 10(b): Code and Output snippet

c) Write a Python program to split the text sentence or paragraph into a list of words. After that remove the stop words, remove the punctuations.

Code:

```
if __name__=="__main__":
    string=input("Enter Your Sentence or paragraph:- ").lower()   #Taking the input from user


    punctuations = '''!@#$%^&*()-[]{}<>;:'"\,./?_~'''                  #Listing all punctuations
    stop_words={'a','about','above','after','again','against','all','am','an',
'the','and','any','are','aren','as','at','be',

'because','been"before','being','below','between','both','but','by','can','couldn','d','did','didn',

'do','does','doesn','doing','don','down','during','each','few','for','from','further','had','hadn',
            'has','hasn','have','having','he','her','here','hers','herself','him','himself','his','how','i','if',
            'in','into','is','isn',"isn't",'it',"it's",'its','itself','just','ll','m','ma','me','more','most','my',
            'myself','no','nor','not','now','of','off','on','once','only','or','other','our','ours','ourselves',

'out','over','own','same','she','where','which','while','who','whom','why','will','with','won',"won't
",
            'wouldn','you','your','yours','yourself','yourselves'}      #Storing all stop words in
local variable
```

```
for char in string:                                    #Removing all punctuations
    if char in punctuations:
        string=string.replace(char,"")

string_list=string.split()                             #Spliting the string into list
vectorizer=TfidfVectorizer(stop_words=stop_words)
X=vectorizer.fit_transform(string_list)
vectorizer.get_feature_names_out()
```

Explanation:

User will input a sample text that will be stored as a string. Here we have input “This movie is very scary and lengthy. It is spooky and good. It is slow.” We created another variable for storing the punctuations and then removing them. Created a list of stop words then used sklearn.feature_extraction.text module to extrant the words other than the stop words.

```
from sklearn.feature_extraction.text import TfidfVectorizer

if __name__=="__main__":
    string=input("Enter Your Sentence or paragraph:- ").lower()                    #Taking the input from user

    punctuations = '''!@#$%^&*()-[]{}<>;:'"\,./?_~'''                              #Listing all punctuations
    stop_words={'a','about','above','after','again','against','all','am','an', 'the','and','any','are','aren','as','at','be',
                'because','been''before','being','below','between','both','but','by','can','couldn','d','did','didn',
                'do','does','doesn','doing','don','down','during','each','few','for','from','further','had','hadn',
                'has','hasn','have','having','he','her','here','hers','herself','him','himself','his','how','i','if',
                'in','into','is','isn',"isn't",'it',"it's",'its','itself','just','ll','m','ma','me','more','most','my',
                'myself','no','nor','not','now','of','off','on','once','only','or','other','our','ours','ourselves',
                'out','over','own','same','she','where','which','while','who','whom','why','will','with','won',"won't",
                'wouldn','you','your','yours','yourself','yourselves'}             #Storing all stop words in local variable

    for char in string:                                                            #Removing all punctuations
        if char in punctuations:
            string=string.replace(char,"")

    string_list=string.split()                                                     #Spliting the string into list
    vectorizer=TfidfVectorizer(stop_words=stop_words)
    X=vectorizer.fit_transform(string_list)
    vectorizer.get_feature_names_out()
```

```
Enter Your Sentence or paragraph:- This movie is very scary and lengthy. It is spooky and good. It is not scary and slow.

The Final List after removing punctuations and stop words is :-

 ['this', 'movie', 'very', 'scary', 'lengthy', 'spooky', 'good', 'scary', 'slow']
```

Fig 10(c): Code and Output snippet

CONCLUSION: Hence we have generated the code for all the questions successfully.