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Python Programming LAB Assessment 2

Develop python programs for the following Scenarios -

Q1. You throw 2 dice, one black and green. what is the probability that the number of eyes on the black die is larger than the number of eyes on the green die?

```
import random
N = int (input ("Enter N: ")
M = 0
for i in range (N):
    black_die = random. randint (1,6)
    green_die = random. randint (1,6)
    if (black_die > green_die):
        M += 1
probability = M/N
Print ("The probability that the number of eyes on the black die is longer than the number of eyes on the green die:",
probability)
```

Output:

Enter N: 100
The probability that the number of eyes on the black die is larger than the number of eyes on the green die : 0.46.

Q. Develop the step-by-step program for the guessing game using the following constraints -

The player only gets 5 turns. Hint: randint() function for Secret_num. The programme tells the player after each guess if the number is higher or lower.

The program prints appropriate messages for when the player wins and loses.

Code -

```
import random
SecretNum = random.randint(1,100)
noOfGuesses = 5
print("Welcome to the Guessing Game!")
print("You have 5 chances to guess the no. between 1 and 100")
while (noOfGuesses):
    guess = int(input("Enter your guess (1-100): "))
    if (guess == SecretNum):
        print("Congratulations! You guessed the number!")
        break
    elif (guess < SecretNum):
        print("Higher", noOfGuesses -1, "guesses left")
        noOfGuesses-=1
    else:
        print("Lower", noOfGuesses+1, "guesses left")
        noOfGuesses -=1
if(guess != SecretNum):
    print("You have lost the game! The secret Number was",
          SecretNum)
```

Output

```
Welcome to the guessing game!
You have 5 chances to guess the number between 1 and 100
Enter your guess (1-100): 7
Lower 4 guesses left
Enter your guess (1-100): 5
Congratulations! You guessed the number!
```

Q3. subject = input("Enter the subject: ")

student_marks = float(input("Enter the marks secured by the student: "))

class_average = float(input("Enter the class average: "))

deviation = student_marks - class_average

```
if (deviation >= 20):
    print("Grade in", subject, ": S")
elif (deviation >= 10):
    print("Grade in", subject, ": A")
elif (-5 <= deviation <= 5):
    print("Grade in", subject, ": B")
elif (deviation <= -10):
    print("Grade in", subject, ": C")
elif (deviation <= -15):
    print("Grade in", subject, ": D")
else:
    print("Grade in", subject, ": F")
```

Output Enter the subject: Python

Enter the marks secured by the student: 76

Enter the class average: 60

Grade in Python: A.

Q4. Indian Railways offer senior citizen concession for elderly people above certain age. Develop a program based on following.

Male	Age >= 60	40% of base fare
Female	Age >= 58	50% of base fare.

Code

```
gender = input("Enter gender (M/F): ")
age = int(input("Enter age: "))
base_fare = float(input("Enter the base fare: "))
if ((gender == 'M' or gender == 'm') and age >= 60):
    concession = 0.4 * base_fare
    fare = base_fare - concession
    print("Eligible for senior citizen concession")
    print("Ticket amount:", fare)
elif ((gender == "F" or gender == "f") and age >= 58):
    concession = 0.5 * base_fare
    fare = base_fare - concession
    print("Eligible for senior citizen concession")
    print("Ticket amount:", fare)
else:
    print("Not eligible for senior citizen concession")
    print("Ticket amount:", base_fare)
```

Output

```
Enter gender (M/F): M
Enter age: 67
Enter the base fare: 345
Eligible for senior citizen concession:
Ticket amount: 207.0
```

Q5. Help the teller of Lakshmi Silks to calculate the net discount offered in seasonal shopping for a customer based on the following criteria

Sarees	20%
Ethic wears	15%
Gents wears	15%
Kids wears	15%
net bill amount > 6,000	extra 5%

Code : bill_amount = float (input ("Enter the bill amount : "))
Item_category = input ("Enter the item category:")
discount = 0
if (Item_category == "Saree"):
discount = 0.2
elif (item_category == "Ethic wears" or Item_category == "Events wears"
or Item_category == "kids wears"):
discount = 0.15
net_bill_amount = bill_amount - (discount * bill_amount)
if (net_bill_amount > 6000):
net_discount = 0.05 * net_bill_~~discount~~ amount
net_bill_amount = net_bill_amount - net_discount
print ("Net bill amount :", net_bill_amount)

output: Enter the bill amount : 12500
Enter the Item category : Saree
Net bill amount : 9500.0

Q6. Program that displays the last digit of a user input number, and also finds out whether the last digit is divisible by 5.

Code : n = int (input ("Enter a number: "))
last_digit = n % 10
print ("The last digit is", last_digit)
if (last_digit % 5 == 0):
print ("The last digit is divisible by 5")
else:
print ("The last digit is not divisible by 5")

output: Enter a number: 12345
The last digit is 5
The last digit is divisible by 5

Q7. Program that accepts the on Road price of a bike and displays the Road tax to be levied on it, based on the following guidelines.

>200 000	20%.
1,00,00 - 1,99,000	15%.
< 1,00,00	10%.

Code:

```
onRoadprice = int(input("Enter the on road price of
                the bike : "))
if onRoadprice >= 200000:
    tax = 0.2 * onRoadprice
elif onRoadprice >= 100000 and onRoadprice <= 199000:
    tax = 0.15 * onRoad price
else:
    tax = 0.1 * onRoadprice
print("The Road tax to be levied on the bike is: Rs.", tax)
```

Output: Enter the on road price of the bike: 200000
The Road tax to be levied on the bike is: Rs. 40000.0

Q8. Program that finds whether a user given value is divisible by 3, 4 and both.

Code:

```
n = int(input("Enter a number: "))
if (n%3 == 0 and n%4 == 0 and n%12 == 0):
    print("The number is divisible by 3 and 4")
else:
    print("The number is not divisible by 3 or 4")
```

Output: Enter a number: 36
The number is divisible by 3 and 4