ASSIGNMENT 2

ASSIGNED DATE : 28-09-22

1. Write a function to check whether a number falls in a given range

```python
In [17]:  def range_checker(n):
              if n in range (1, 100):
                  print("It is in range")
              else:
                  print("not in range")
```

```python
In [18]:  n = 200
          range_checker(n)
```

```
not in range
```

2. Some board games require you to reduce the number of cards you are holding by half, rounded

down. For instance, if you have 10 cards, you would reduce to 5 and if you had 11 cards you would also reduce to 5. With 12 cards you would reduce to 6. Write a program that asks the user to enter how many cards they have and print out what their hand would reduce to under this rule.

```python
In [5]:  n = int(input("Enter a number:"))
         a = n%2
         if a==0:
                 n = n/2
                 print(" the number of cards you have after reducing",n)
         else:
                 n= n/2 + 0.5
                 print(" the number of cards you have",n)
```

```
Enter a number:5
 the number of cards you have 3.0
```

3. Write a program that asks the user to enter a positive integer. Then generate a random number between

that number and 10 more than that number and print the letter A that many times on the same line.

```python
In [ ]:  n = int(input("Enter a number"))
         random.randint ( n ,n+10)
```

```python
In [39]:  num_cards = eval(input('How many cards do you have? '))
          print('After reducing, you now have:', num_cards // 2)
```

```
How many cards do you have? 5
After reducing, you now have: 2
```

4. This is a very simple billing program. Ask the user for a

starting hour and ending hour, both given in

24-hour format (e.g., 1 pm is 13, 2 pm is 14, etc.). The charge to use the service is $5.50 per hour. Print out the user's total bill. You can assume that the service will be used for at least 1 hour and never more than 23 hours. Be careful to take care of the case that the starting hour is before midnight and the ending time is after midnight.

In [2]:
```python
start = eval(input('Enter starting hour (0-23): '))
end = eval(input('Enter ending hour (0-23): '))
if end >= start:
    print('Total: ', (end-start)*5.50)
else:
    print('Total: ', (24-start + end)*5.50)
```

```
Enter starting hour (0-23): 23
Enter ending hour (0-23): 0
Total:  5.5
```

5. One way to estimate probabilities is to run what is called a computer simulation.

Here we will estimate the probability of rolling doubles with two dice (where both dice come out to the same value).

To do this, run a loop 10,000 times in which random numbers are generated representing the dice and a count is kept of how many times doubles appear.

Print out the final percentage of rolls that are doubles.

In [4]:
```python
from random import randint

count = 0
for i in range(10000):
    r1 = randint(1, 6)
    r2 = randint(1, 6)
    if r1 == r2:
        count += 1
print('Percentage of doubles:', 100*count/10000)
```

```
Percentage of doubles: 16.1
```

In [ ]: