Assignment_02: UmaPavan Kumar Kethavarapu.

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

In [71]:
```
def check_range(start,end):
    val=range(start,end)
    print(val)
    number = eval(input('Enter The Number To Verify in The Range: '))
    print("Number", number)
    if number in range(start,end):
        print(number,'Is in Given Range')
    else:
        print(number,'Not In the Given Range')
```

In [72]:
```
check_range(10,20)
```

```
range(10, 20)
Enter The Number To Verify in The Range: 13
Number 13
13 Is in Given Range
```

In [74]:
```
check_range(10,30)
```

```
range(10, 30)
Enter The Number To Verify in The Range: 50
Number 50
50 Not In the Given 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.

In [75]:
```
def cards_verify():
    cards = eval(input('Enter Number of Cards You Hold:'))
    final_val = int(cards/2)
    print('Based on Rule, Cards You Hold Are:',final_val)
```

In [76]:
```
cards_verify()
```

```
Enter Number of Cards You Hold:10
Based on Rule, Cards You Hold Are: 5
```

In [77]:
```
cards_verify()
```

```
Enter Number of Cards You Hold:11
Based on Rule, Cards You Hold Are: 5
```

In [78]:
```
cards_verify()
```

```
Enter Number of Cards You Hold:12
Based on Rule, Cards You Hold Are: 6
```

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.

In [82]:
```
import random
num = eval(input('Enter a +ve Number'))
y = random.randint(num,num+10)
print(y,'\n')
for i in range(y):
    print('A',end=' ')
```

```
Enter a +ve Number4
7

A A A A A A A
```

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 [24]:
```
start = eval(input('Enter Service Start Time:'))
if start>12:
    pass;
    print('Enter Start Time Before Mid Night (Before 12AM)')
end = eval(input('Enter Service End Time :'))
if end<12:
    pass;
    print('Enter End Time After Mid Night (After 12 AM)')


Hour_Rate = 5.50
duration = abs(end-start)
print('Service Time Used: ',duration)
print('Total Service Cost: ', duration*Hour_Rate)
```

```
Enter Service Start Time:11
Enter Service End Time :6
Enter End Time After Mid Night (After 12 AM)
Service Time Used:  5
Total Service Cost:  27.5
```

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 [43]:

```
Matches=0
for i in range(0,10000):
    dice1 = random.randint(1,13)
    print(dice1)
    dice2 = random.randint(1,13)
    print(dice2)
    if(dice1 == dice2):
       Matches+=1
print('Matches',c)
per = Matches/10000*100
print('Matches Percentages: ',per)
```

```
4
7
5
1
9
10
8
10
3
12
10
4
4
3
8
2
13
Matches 732
Matches Percentages:  7.82
```