In [19]:
```
# 1. Write a function to check whether a number falls in a given range

start=int(input("Enter first number in the range "))
last=int(input("Enter last number in the range "))
n=int(input("Enter a number "))

def check(start,last,n):
    if(start<=n and last>=n):
        return True
    else:
        return False

value=check(start,last,n)
if(value==True):
    print("Number",n,"is within the range of (",start,",",last,")")
else:
    print("Number",n,"is not within the range of (",start,",",last,")")
```

```
Enter first number in the range 1
Enter last number in the range 10
Enter a number 4
Number 4 is within the range of ( 1 , 10 )
```

In [23]:
```
"""2. Some board games require you to reduce the number of cards you are
down. For instance, if you have 10 cards, you would reduce to 5 and if yo
also reduce to 5. With 12 cards you would reduce to 6. Write a program th
how many cards they have and print out what their hand would reduce to un

n=int(input("How many cards you have "))
floor=n//2
print("your cards would be reduced to ",floor)
```

```
How many cards you have 13
your cards would be reduced to  6
```

In [38]:
```
"""3. Write a program that asks the user to enter a positive integer. The
that number and 10 more than that number and print the letter A that many
line."""

import random
n=int(input("Enter a positive integer "))
rand=random.randint(n,(n+10))
print("random number generated between(",n,",",n+10,") is", rand)
print(rand*"A")
```

```
Enter a positive integer 10
random number generated between( 10 , 20 ) is 17
AAAAAAAAAAAAAAAAA
```

In [36]:
```
"""4. This is a very simple billing program. Ask the user for a starting
24-hour format (e.g., 1 pm is 13, 2 pm is 14, etc.). The charge to use th
out the user's total bill. You can assume that the service will be used f
more than 23 hours. Be careful to take care of the case that the starting
the ending time is after midnight."""

start_h=end_h=total_h=0

while(True):
    start_h=int(input("Enter starting hour "))
    if(start_h<0 or start_h>23):
        print("Enter valid 24 - hour format ")
    elif(start_h==0):
        print("Starting hour must be before midnight ")
    else:
        break

while(True):
    end_h=int(input("Enter ending hour "))
    if(end_h<0 or end_h>23):
        print("Enter valid 24 - hour format ")
    elif(start_h<end_h):
        print("ending hour must be after midnight ")
    else:
        break

total_h= 24 - (start_h-end_h)

print("Total bill $",total_h*5.50)
```

```
Enter starting hour 23
Enter ending hour 4
Total bill $ 27.5
```

In [24]:
```
""" 5. One way to estimate probabilities is to run what is called a compu
the probability of rolling doubles with two dice (where both dice come ou
do this, run a loop 10,000 times in which random numbers are generated re
kept of how many times doubles appear. Print out the final percentage of
doubles. """

import random
count=0
for i in range(0,10000):
    dice1=random.randint(1,6)
    dice2=random.randint(1,6)
    if(dice1==dice2):
        count+=1
print("final percentage of rolls that are doubles is ",(count/10000)*100,
```

```
final percentage of rolls that are doubles is  16.85 %
```