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

```
def function(x):
    if (x>=0 and x<=100):
        print ('number falls under 0 to 100')
    elif (x>=101 and x<=200):
        print ('number falls under 101 to 200')
    elif (x>200):
        print("number is greater than 200")
```

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 also reduce to 5 and if you have 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 printout what their hand would reduce to under this rule.

```
cards = int(input("Enter no. of cards: "))
print(c-c//2, c//2)
```

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.

```
import random as r
x = int (input())
n = r.randint (x, x+10)
print ('A' * n)
```

4. This is a very simple billing program. Ask the user for a starting hour and ending hour, both given in 24-hour format (eg, 1pm 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 atleast 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.

```
s = int (input())
e = int (input())
print (5.50 * (e - s)).
```

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 pucentage of rolls that are doubles.

```
import random as r
c = 0
for i in range (10000):
    x = r.rand_int(1,6)
    y = r.randint(1,6)
    if (x == y):
        c += 1
print (c/1000 * 100)
```