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

```
def test_range():
 if n in range(3,10):
  print("%s in range "%str)
  else
  print("The given number is not in range")
test_range(int(input()))
```

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.
Solution:

```
n = int(input())
r=n//2
print("User cards values:",n)
print("Reduced cards value:", round(r))
```

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
randomlist = []
for i in range(0,5):
n = random.randint(1,30)
randomlist.append(n)
print(randomlist)
```

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.
Solution:

```
t1=int(input("Enter Billing start Hour:"))
t2=int(input("Enter Billing End Hour:"))
#total number of hours
num_of_hrs=t2-t1
#total billing
tot_bill_serv=nh*5.50
print("Number of hours used service:", num_of_hrs)
print("Total billing charge for the user:",tot_bill_serv)
```

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.

```
import random
```

```
count1=0
count2=0
count3=0
count4=0
count5=0
count6=0
dice=random.randint(1,7)
for i in range(10000):
    if dice==1:
        count1+=1
    if dice==2:
        count2+=1
    if dice==3:
        count3+=1
    if dice==4:
        count4+=1
    if dice==5:
        count5+=1
    if dice==6:
        count6+=1
print "You entered "+ str(count1)+ " ones, " + str(count2) + " twos, "+str(count3) + " threes, " +str(count4)+ " fours,
" +str(count5)+ " fives, and "+str(count6) +" sixes."
```