In [1]:
```python
##1. Write a function to check whether a number falls in a given range
def number_range(n):
    if n in range(1,11):
        print( " %s is in the given range"%str(n))
    else :
        print("The number is outside the given range.")
number_range(8)
number_range(12)
```

```
 8 is in the given range
The number is outside the given range.
```

In [2]:
```python
##2. Some board games require you to reduce the number of cards you are holding by half, round
##    For instance, if you have 10 cards, you would reduce to 5 and if you had 11 cards you wou
##    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.

numberofcards = eval(input('How many cards you have? '))
print('After reducing, now you  have:', numberofcards // 2)
```

```
How many cards you have? 10
After reducing, now you  have: 5
```

In [3]:
```python
##3. Write a program that asks the user to enter a positive integer. Then generate a random nu
##    that number and 10 more than that number and print the letter A that many times on the so

from random import randint
number = eval(input('Enter a positive integer: '))

number_times = randint(number, number+10)

for i in range(number_times):
    print('A', end='')
print()
```

```
Enter a positive integer: 5
AAAAAAAAAAAAAA
```

In [4]:
```python
##4. This is a very simple billing program. Ask the user for a starting hour and ending hour,
##    24-hour format (e.g., 1 pm is 13, 2 pm is 14, etc.). The charge to use the service is $5.
##    out the user's total bill. You can assume that the service will be used for at least 1 ho
##    more than 23 hours. Be careful to take care of the case that the starting hour is before
##    the ending time is after midnight.
start = eval(input('Input starting hour (0-23): '))
end = eval(input('Input ending hour (0-23): '))
if end >= start:
    print('Total: ', (end-start)* 5.50)
else:
    print('Total: ', (24-start + end)* 5.50)
```

```
Input starting hour (0-23): 5
Input ending hour (0-23): 22
Total:  93.5
```

In [5]:
```python
##5. One way to estimate probabilities is to run what is called a computer simulation. Here we
##    the probability of rolling doubles with two dice (where both dice come out to the same va
##    do this, run a loop 10,000 times in which random numbers are generated representing the d
##    a count is kept of how many times doubles appear. Print out the final percentage of rolls
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('Final percentage of rolls that are doubles:', 100*count/10000)
```

```
Final percentage of rolls that are doubles: 16.37
```