

In [64]: #1. Write a function to check whether a number falls in a given range

```
def isNumberInRange(num):
    if num in range(0,25):
        print (num, 'is in the given range.')
    else :
        print("The number is outside the given range.")
test_range(5)

#Step 1 : Enter a number
number = int(input('Enter a number: '))

#Step 2 : Define a function to check whether the number falls in the range. Assume the range from 0 to 25
isNumberInRange(number)

#Step 3 : Print a message whether the number is in the range or outside the given range

5 is in the range
Enter a number: 9
9 is in the given range.
```

In [66]:

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'''
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.
'''

#Step 1 : Enter no. of card the user has.
number = int(input('Enter no. of cards you have: '))

#Step 2
number = number//2
print ('You now have ',number, 'cards in your hand.')

Enter no. of cards you have: 78
You now have 39 cards in your hand.
```

In [52]:

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'''
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
#Step 1 : Enter a positive integer
number = int(input('Enter a positive integer '))
if(number < 0):
    print ('Pleae enter a positive integer')
else:
    # Program to generate a random number between the number and 10 more than that number
    randomnumber = random.randint(number,(number+10))
    print('Generated random number ', randomnumber)
    for i in range(number,randomnumber):
        print('A',end='')

Enter a positive integer 3
Generated random number 10
AAAAAAA
```

In [63]:

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'''
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.
'''

#Step 1:Accept the starting hour from the user
starting_hour = int(input('Enter the starting hour (in 24-hour format): '))

#Step 2:Accept the ending hour from the user
ending_hour = int(input('Enter the ending hour (in 24-hour format): '))

#Step 3:Calculate the total hours the service was used.
totalhours_serviceused = ending_hour - starting_hour

#Step 4:Calculate the charge for the service used based on the cost as $5.50 per hour
totalcharges = float(5.50 * totalhours_serviceused)
print('Total Charges: $', totalcharges)

Enter the starting hour (in 24-hour format): 9
Enter the ending hour (in 24-hour format): 20
Total Charges: $ 60.5
```

In []:

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'''
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
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a count is kept of how many times doubles appear. Print out the final percentage of rolls that are  
doubles.  
'''
```

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