1. Write a function called showNumbers that takes a parameter called limit. It should print

all the numbers between 0 and limit with a label to identify the even and odd numbers. For example, if the limit is 3, it should print:0 EVEN 1 ODD 2 EVEN 3 ODD

In [4]:
```
def shownumbers(limit):
    for i in range (0,limit+1):
        if i % 2 == 0:
            print(i,'even')
        else:
            print(i,'odd')
shownumbers(5)
```

```
0 even
1 odd
2 even
3 odd
4 even
5 odd
```

Write a function that returns the sum of multiples of 3 and 5 between 0

and limit (parameter). For example, if limit is 20, it should return the sum of 3, 5, 6, 9, 10, 12, 15, 18, 20.

In [1]:
```
def sum_multiples(limit):
    nul_list_3 = []
    nul_list_5 = []
    for i in range (0,limit+1):
        if i % 3 == 0:
            nul_list_3.append(i)
    for a in range(0,limit+1):
        if a % 5 == 0:
            nul_list_5.append(a)
    n_list = nul_list_3 + nul_list_5
    return sum(n_list)
sum_multiples(10)
```

Out[1]: 33

3. Write a function called show_stars(rows). If rows is 5, it should print the

following:***

In [22]:
```
def show_stars(rows):
    if rows == 5:
        print(rows*'*'*3)
show_stars(5)
```

```
***************
```

4. Write a function that prints all the prime numbers between 0 and limit where limit is a

parameter.

In [25]:
```
def prime_numbers(limit):
    num_list=[]
    for i in range(0,limit+1):
        if i % 2 == 1:
            num_list.append(i)
            print(num_list)
prime_numbers(5)
```

```
[1]
[1, 3]
[1, 3, 5]
```

5. Write a program (function!) that takes a list and returns a new list that contains all the

elements of the first list minus all the duplicates.

In [41]:
```
def unique_list(lists):
    lists= set(lists)
    convert_list=list(lists)
    print (convert_list)
unique_list([1,2,2,2,3,4,5,6])
```

```
[1, 2, 3, 4, 5, 6]
```

6. Write a function to ask the user for a number and determine whether the number is

prime or not.

In [37]:
```
num=int(input('enter any number'))
def check_prime(num) :


    if num % 2 == 1:
            print(num,'is a prime number')
    else:
            print(num,'not a prime number')

check_prime(num)
```

```
enter any number45
45 is a prime number
```

7. Write a program that asks the user how many Fibonnaci numbers to generate and then

generates them.

In [41]:
```
def fibonacci():
    num = int(input("Please enter how many numbers would you like in your Fibonac
    i = 1
    if num == 0:
        fib = []
    elif num == 1:
        fib = [1]
    elif num == 2:
        fib = [1,1]
    elif num > 2:
        fib = [1,1]
        while i < (num - 1):
            fib.append(fib[i] + fib[i-1])
            i += 1
    return fib
print (fibonacci())
```

```
Please enter how many numbers would you like in your Fibonacci sequence: 3
[1, 1, 2]
```

8. Write a function that ask the user for a string and print out whether this string is a

palindrome or not.

In [27]:
```
def pal(string):
    string = input('enter any string:')
    if string ==  string [::-1]:
        print ('it is a palindrome')
    else:
        print('not a palindrome')
        return string
pal('string')
```

```
enter any string:madam
it is a palindrome
```

9. Write a function that takes an ordered list of numbers (a list where the elements are in

order from smallest to largest) and another number.

In [21]:
```
set_1 = {}
set_2 = {}
def function(set_1,set_2):
    new_list = list(set_1 | set_2)
    print (new_list)
function({3,2,1},{5})
```

```
[1, 2, 3, 5]
```

10. Create a program that asks the user to enter their name and their age. Print out a

message addressed to them that tells them the year that they will turn 100 years old

In [9]:
```
name = input("Enter your name: ") # user input
current_age = int(input("Enter your age: ")) # user input
#calculating the 100th year, considering 2020 as the current year
hundredth_year = 2022 + (100 - current_age)
print(f'{name} will be 100 years old in the year {hundredth_year}.')
```

```
Enter your name: loice
Enter your age: 30
loice will be 100 years old in the year 2092.
```

In [31]:
```
name = input("What is your name: ")
age = int(input("How old are you: "))
year = 2014 - age + 100
print(name + ", you will be 100 years old in the year " + str(year))
```

```
What is your name: loice
How old are you: 30
loice, you will be 100 years old in the year 2084
```

In [ ]:
```

```