

6. Procedure to check if a given number is a Perfect Number. (Perfect number is a number for which the sum of all it's divisors is equal to the number itself)

IsPerfect(3) -> False

IsPerfect (6) -> True

In [63]:

```
def IsPerfect(n):  
    i=1  
    sum=0  
    while i<n:  
        if(n%i==0):  
            sum=sum+i  
        i+=1  
    if(sum==n):  
        return True  
    else:  
        return False
```

In []:

```
IsPerfect(496)
```

Arrays

In [29]:

```
import array  
a=array.array('i',[1,2,3,4])
```

In [30]:

```
print(a)
```

```
array('i', [1, 2, 3, 4])
```

In [31]:

```
print(a[0])
```

```
1
```

In [42]:

```
a1=array.array('u',['a','b'])
```

In [39]:

```
print(a1[1])
```

b

In [41]:

```
array.typecodes
```

Out[41]:

```
'bBuhHiIlLqQfd'
```

In [43]:

```
a1.append("c")
```

In [44]:

```
print(a1)
```

```
array('u', 'abc')
```

In [45]:

```
a1[2]
```

Out[45]:

```
'c'
```

In [46]:

```
t=("Pavan","Sandya","Bhavya") ## Tuple is immutable
```

In [47]:

```
t.append("Siva")
```

```
-----  
-  
AttributeError                                Traceback (most recent call las  
t)  
<ipython-input-47-55e132295451> in <module>  
----> 1 t.append("Siva")
```

AttributeError: 'tuple' object has no attribute 'append'

In [48]:

```
t[1]
```

Out[48]:

```
'Sandya'
```

In [49]:

```
t[0]
```

Out[49]:

```
'Pavan'
```

In [50]:

```
a1.itemsize
```

Out[50]:

```
2
```

In [51]:

```
a1[2]
```

Out[51]:

```
'c'
```

In [54]:

```
len(a1)
```

Out[54]:

```
3
```

In [55]:

```
s1="PAVAN"
```

In [56]:

```
s1[1:3:1]
```

Out[56]:

```
'AV'
```

In [62]:

```
s1[-1:-4:2]
```

Out[62]:

```
''
```

7. Procedure to generate the first N perfect numbers.

GeneratePerfect(2) -> 6 28

GeneratePerfect (4) -> 6 28 496 8128

In [7]:

```
def GeneratePerfectInRange(n):  
    for i in range(1,n):  
        sum=0  
        for j in range(1,i):  
            if(i%j==0):  
                sum=sum+j  
        if(sum==i):  
            print(i)  
GeneratePerfectInRange(7)
```

6

In [3]:

```
def GeneratePerfect(n):  
    total_perfect = 0  
    i = 1  
    while True:  
        sum=0  
        for j in range(1,i):  
            if(i%j==0):  
                sum=sum+j  
        if(sum==i):  
            print(i)  
            total_perfect += 1  
        if total_perfect == n:  
            break  
    i+=1
```

In [6]:

```
GeneratePerfect(4)
```

6
28
496
8128

In []: