In [ ]:
```
selection sort
```

In [6]:
```
arr=[10,23,1,9]
n=len(arr)
for i in range(n-1):
    min=i
    for j in range(i+1,n):
        if arr[j]<arr[min]:
            min=j
    if min!=i:
        temp=arr[min]
        arr[min]=arr[i]
        arr[i]=temp
print(arr)
```

```
[1, 9, 10, 23]
```

In [ ]:
```
bubble sort
```

In [16]:
```
arr=[2,4,5,7]
n=len(arr)
for i in range(0,n-1):
      for j in range(i,n):
        if arr[i]>arr[j]:
            arr[i],arr[j]=arr[j],arr[i]
print(arr)
```

```
[2, 4, 5, 7]
```

In [ ]:
```
insertion sort
```

In [26]:
```
n=[10,30,80,70]
a=len(n)
for i in range(0,a):
    key=n[i]
    j=i-1
    while j>0 and key<n[j]:
        n[j+1]=n[j]
        j-=1
    n[j+1]=key
print(n)
```

```
[10, 30, 70, 80]
```

In [ ]:
```
sequential search
```

In [39]:

```
arr=[5, 3, 7, 1, 9, 2]
x=3
result=-1
for index, elem in enumerate(arr):
    if elem==x:
        result=index
        break
if result!=-1:
    print(f"Ele found")
else:
    print(f"Ele not found")
```

```
Ele found
```

In [ ]:

```
string matching
```

In [42]:

```
arr = ["apple","mango"]
target = 7
result = -1
for index, element in enumerate(arr):
    if element == target:
        result = index
        break
if result != -1:
    print(f"Element {target} ")
else:
    print(f"Element {target} not found")
```

```
Element 7 not found
```

In [ ]:

```
closest pair
```

In [1]:

```
import math
def distance(point1, point2):
    return math.sqrt((point1[0] - point2[0]) ** 2 + (point1[1] - point2[1])
def closest_pair(points):
    min_dist = float('inf')
    p1, p2 = None, None
    for i in range(len(points)):
        for j in range(i + 1, len(points)):
            dist = distance(points[i], points[j])
            if dist < min_dist:
                min_dist = dist
                p1, p2 = points[i], points[j]
    return p1, p2, min_dist
points = [(2, 3), (12, 30), (40, 50), (5, 1), (12, 10), (3, 4)]
p1, p2, min_dist = closest_pair(points)
print(f"The closest pair of points are {p1} and {p2} with a distance of {mi
```

```
The closest pair of points are (2, 3) and (3, 4) with a distance of 1.4142
135623730951
```

In [3]:

```python
def maxPackedSets(items, sets):
    maxSets = 0
    for set in sets:
        numSets = 0
        for item in items:
            if item in set:
                numSets += 1
                tems = [i for i in items if i != item]
        maxSets = max(maxSets, numSets)
    return maxSets
items = [1, 2, 3, 4, 5, 6]
sets = [
    [1, 2, 3],
    [4, 5],
    [5, 6],
    [1, 4]
]
maxSets = maxPackedSets(items, sets)
print(f"Maximum number of sets : {maxSets}")
```

```
Maximum number of sets : 3
```

In [ ]: