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MODUL 5 LATIHAN

PENGURUTAN

Routine swap untuk menukar A[p] dan A[q] :

```
def swap(A, p, q):  
    tmp = A[p]  
    A[p] = A[q]  
    A[q] = tmp
```

Saat dijalankan di python shell :

```
>>> K = [50,20,70,10]  
>>> swap(K, 1, 3)  
>>> K  
[50, 10, 70, 20]
```

Routine untuk mencari index dari elemen yang terkecil :

```
def cariPosisiYangTerkecil(A, dariSini, sampaiSini):  
    posisiYangTerkecil = dariSini  
    for i in range(dariSini+1, sampaiSini):  
        if A[i] < A[posisiYangTerkecil]:  
            posisiYangTerkecil = i  
    return posisiYangTerkecil
```

Saat dijalankan di python shell :

```
>>> A = [18, 13, 44, 24, 66, 107, 89]  
>>> j = cariPosisiYangTerkecil(A, 2, len(A))  
>>> j  
3
```

5.1 Bubble Short

```
def bubbleSort(A):  
    n = len(A)  
    for i in range(n-1):  
        for j in range(n-i-1):  
            if A[j] > A[j+1]:  
                swap(A, j, j+1)
```

Saat dijalankan di python shell :

```
>>> L = [10, 51, 2, 18, 4, 31, 13, 5, 23, 64, 29]
>>> bubbleSort(L)
>>> L
[2, 4, 5, 10, 13, 18, 23, 29, 31, 51, 64]
```

5.2 Selection Sort

```
def selectionSort(A):
    n = len(A)
    for i in range(n - 1):
        indexKecil = cariPosisiYangTerkecil(A, i, n)
        if indexKecil != i:
            swap(A, i, indexKecil)
```

Saat dijalankan di python shell :

```
>>> L = [10, 51, 2, 18, 4, 31, 13, 5, 23, 64, 29]
>>> selectionSort(L)
>>> L
[2, 4, 5, 10, 13, 18, 23, 29, 31, 51, 64]
```

5.3 Insertion Sort

```
def insertionSort(A):
    n = len(A)
    for i in range(1, n):
        nilai = A[i]
        pos = i
        while pos > 0 and nilai < A[pos - 1]:
            A[pos] = A[pos - 1]
            pos = pos - 1
        A[pos] = nilai
```

Saat dijalankan di python shell :

```
>>> L = [10, 51, 2, 18, 4, 31, 13, 5, 23, 64, 29]
>>> insertionSort(L)
>>> L
[2, 4, 5, 10, 13, 18, 23, 29, 31, 51, 64]
```