LAPORAN PRAKTIKUM SORTING

Disusun Oleh:

Wahyu Ikbal Maulana
(3323600002)
Sains Data Terapan B

POLITEKNIK ELEKTRONIKA NEGERI SURABAYA

DEPARTEMEN TEKNIK INFORMATIKA DAN KOMPUTER

1. **Insertion Sort**
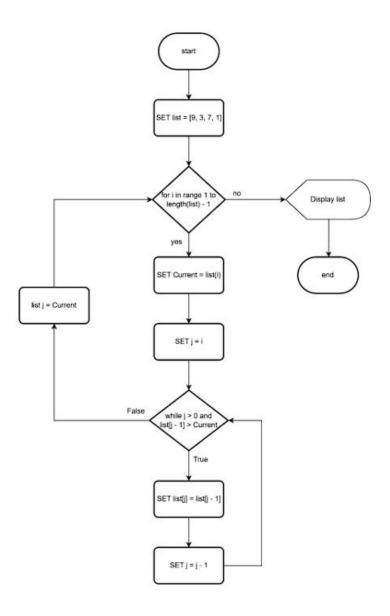
   Input : list number

   Process : It finds the first smallest element (2), It swaps it with the first element of the unordered list, It finds the second smallest element (5), It swaps it with the second element of the unordered list.Similarly, it continues to sort the given elements

   Output : DISPLAY list number sorted

   PSEUDOCODE:

```
START


SET number = [5, 7, 9, 1, 2]
SET len = LENGTH(number)
SET i = 1


FOR i in range 1 to length(list) - 1
     SET Current = list[i]
     SET j=i


     WHILE j > 0 AND list[j - 1] > Current
          SET list[j] = list[j-1]
          SET j = j -1
     List[j] = Current
DISPLAY list
END
```

   FLOWCHART:

1. **Selection Sort**

   Input : list number

   Process : It finds the first smallest element (2), It swaps it with the first element of the unordered list, It finds the second smallest element (5), It swaps it with the second element of the unordered list.Similarly, it continues to sort the given elements

   Output : DISPLAY list number sorted

   PSEUDOCODE:

   ```
   START


   SET number = [11, 5, 9, 2, 3]

   SET len = LENGTH(number)

   SET i = 1
   ```

```
FOR i in range 0 to len -1
    SET min_index = i
    FOR j in range I + 1 to length(list) - 1
       IF list[j] < list[min_index]
          SET min_index = j
    SET temp = list[i]
    List[i] = list[min_index]
Display list
END
```

FLOWCHART:

```
                              ┌─────────────┐
                              │    start    │
                              └──────┬──────┘
                                     │
                              ┌──────▼──────────┐
                              │ SET list =      │
                              │ [7, 4, 9, 5]    │
                              └──────┬──────────┘
                                     │
                                  ◇─────────◇
    ┌───────────┐        no    for i in range 0 to
    │Display list│◄─────────── length(list) - 1
    └──────┬────┘                ◇─────────◇
           │                        │ yes
    ┌──────▼──────┐          ┌───────▼───────┐
    │    end      │          │ SET min_index = i │
    └─────────────┘          └───────┬───────┘
                                     │
                                  ◇─────────◇
                             for j in range i + 1 to    no
                             length(list) - 1
                                  ◇─────────◇
                                     │ yes
                   False         ◇─────────◇
                  ◄───────── if list[j] <
                             list[min_index]
                                  ◇─────────◇
                                     │ True
                              ┌──────▼──────┐
                              │ SET min_index = j │
                              └──────┬──────┘
                                     │
                              ┌──────▼──────────────┐
                              │ SET temp = list(i)  │
                              │ list(i) = list(min_index) │
                              │ list(min_index) = temp │
                              └─────────────────────┘
```