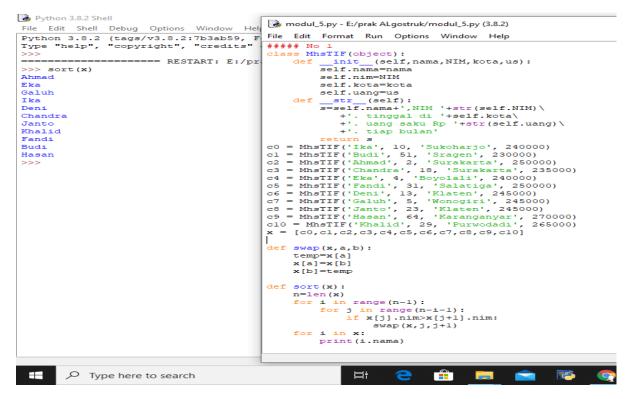
Nama: Nur Fadlilah Azzis

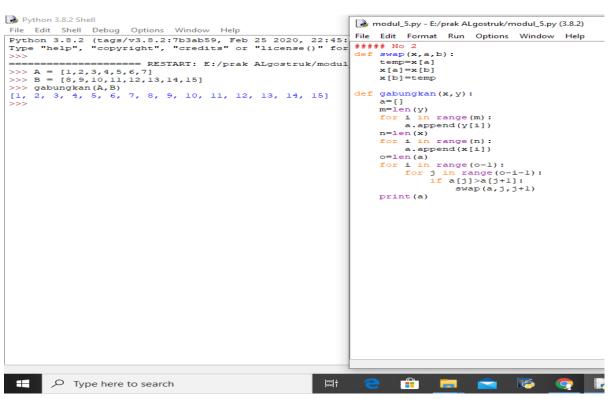
NIM : L200180113

## Modul 5

## No. 1



## No. 2



```
Python 3.8.2 Shell
                                                                                                                       *modul_5.py - E:/prak ALgostruk/modul_5.py (3.8.2)*
File Edit Shell Debug Options
Python 3.8.2 (tags/v3.8.2:7
Type "help", "copyright", "
                                 File Edit Format Run Options Window Help
                                 ##### No 3
                                 def bubbleSort(A):
                                     n = len(A)
Bubble : 9.98505 detik
Selection : 3.85963 detik
Insertion : 4.65644 detik
                                      for i in range(n-1):
                                          for j in range(n-i-1):
    if A[j] > A[j+1]:
                                                    swap(A,j,j+1)
                                 def swap(A,p,q):
                                     tmp = A[p]
A[p] = A[q]
A[q] = tmp
                                 def selectionSort(A):
                                     n = len(A)
                                      for i in range(n-1):
   indexKecil = cariPosisiYangTerkecil(A, i, n)
   if indexKecil != i:
                                               swap(A, i, indexKecil)
                                def cariPosisiYangTerkecil(A, dariSini, sampaiSini):
                                    posisiTerkecil = dariSini
                                    for i in range(dariSini+1, sampaiSini):
                                         if A[1] < A[posisiTerkecil]:</pre>
                                            posisiTerkecil = 1
                                    return posisiTerkecil
                                def insertionSort(A):
                                    n = len(A)
                                    for i in range(l,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
                                from time import time as detak
                                from random import shuffle as kocok
                                k = [i for i in range(1,6001)]
                                kocok(k)
                                u_bub = k[:]
                                u sel = k[:]
                                u ins = k[:]
                                aw = detak();bubbleSort(u bub);ak=detak();print("Bubble
                                                                                                    : %g detik"%
                                                                                        (ak-aw));
                                aw = detak();selectionSort(u_sel);ak=detak();print("Selection : %g detik"%
                                                                                            (ak-aw));
                                aw = detak();insertionSort(u ins);ak=detak();print("Insertion : %g detik"%
                                                                                            (ak-aw));
                                                                         P Type here to search
```