JOBSHEET 5 & 6

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A. Jobsheet 5

```
1  package minggu5;
2
3  public class Mahasiswa {
4      String nama;
5      int thnMasuk, umur;
6      double ipk;
7
8      Mahasiswa(String n, int t, int u, double i){
9          nama = n;
10         thnMasuk = t;
11         umur = u;
12         ipk = i;
13     }
14
15     void tampil(){
16         System.out.println("Nama = "+nama);
17         System.out.println("Tahun Masuk = "+thnMasuk);
18         System.out.println("Umur = "+umur);
19         System.out.println("IPK = "+ipk);
20     }
21 }
```

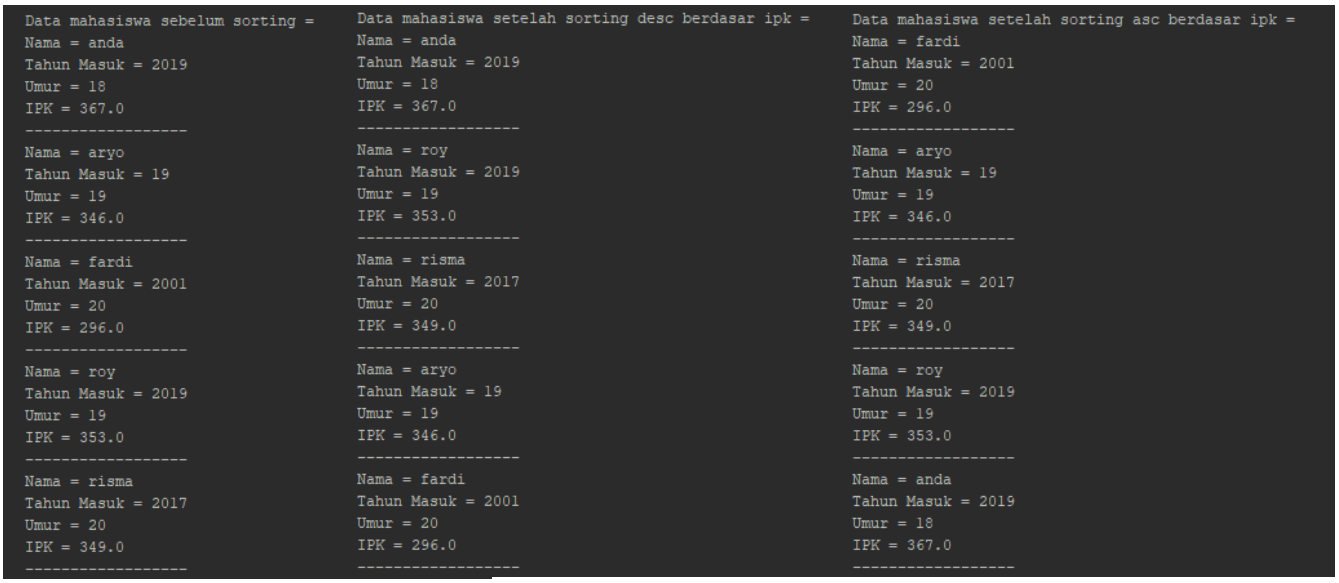
```
1  package minggu5;
2
3  public class DaftarMahasiswaBerprestasi {
4      Mahasiswa listMhs[] = new Mahasiswa[5];
5      int idx;
6
7      void tambah(Mahasiswa m){
8          if(idx<listMhs.length){
9              listMhs[idx] = m;
10             idx++;
11         }else{
12             System.out.println("Data sudah penuh!!");
13         }
14     }
15
16
17
18
19
```

```
20      void tampil(){
21          for(Mahasiswa m : listMhs){
22              m.tampil();
23              System.out.println("------------------");
24          }
25      }
26
27      void bubbleSort(){
28          for(int i=0; i<listMhs.length-1; i++){
29              for(int j=1; j<listMhs.length-i; j++){
30                  if(listMhs[j].ipk > listMhs[j-1].ipk){
31                      Mahasiswa tmp = listMhs[j];
32                      listMhs[j] = listMhs[j-1];
33                      listMhs[j-1] = tmp;
34                  }
35              }
36          }
37      }
38
39      void selectionSort(){
40          for(int i=0; i<listMhs.length-1; i++){
41              int idxMin = i;
42              for(int j=i+1; j<listMhs.length; j++){
43                  if(listMhs[j].ipk < listMhs[idxMin].ipk){
44                      idxMin = j;
45                  }
46              }
47              Mahasiswa tmp = listMhs[idxMin];
48              listMhs[idxMin] = listMhs[i];
49              listMhs[i] = tmp;
50          }
51      }
52  }
```

```
1   package minggu5;
2   import java.util.Scanner;
3   public class Main {
4       public static void main(String[] args) {
5           Scanner s = new Scanner(System.in);
6           Scanner s1 = new Scanner(System.in);
7
8           DaftarMahasiswaBerprestasi data = new DaftarMahasiswaBerprestasi();
9           int jumMhs = 5;
10
11          for(int i=0; i<jumMhs; i++){
12                      System.out.print("Nama = ");
```

```
13                  String nama = s1.nextLine();
14              System.out.print("Thn Masuk = ");
15              int thn = s.nextInt();
16              System.out.print("Umur = ");
17              int umur = s.nextInt();
18              System.out.print("IPK = ");
19              double ipk = s.nextDouble();
20
21              Mahasiswa m = new Mahasiswa(nama, thn, umur, ipk);
22              data.tambah(m);
23          }
24
25          System.out.println("Data mahasiswa sebelum sorting = ");
26          data.tampil();
27
28          System.out.println("Data mahasiswa setelah sorting desc berdasar ipk = ");
29          data.bubbleSort();
30          data.tampil();
31
32          System.out.println("Data mahasiswa setelah sorting asc berdasar ipk = ");
33          data.selectionSort();
34          data.tampil();
35      }
36  }
```

Output :



B. Jobsheet 6

```
1  package minggu6;
2
3  public class Searching {
4      static int sequentialSearch(int arr[], int x) {
5          for (int i = 0; i < arr.length; i++) {
6              if (arr[i] == x) {
7                  return i;
8              }
9          }
10     return -1;
11     }
12 }
```

```
1  package minggu6;
2
3  import static minggu6.Searching.sequentialSearch;
4  public class SearchMain {
5      public static void main(String[] args) {
6          int[] data = {12, 5, 20, 25, 40, 7, 9};
7          int cari = 40;
8          int hasil;
9          hasil = sequentialSearch(data, cari);
10         if (hasil == -1) {
11             System.out.println("Pencarian tidak ketemu");
12         } else {
13             System.out.println("Pencarian ketemu di indek ke: " + hasil);
14         }
15     }
16 }
```

Output :

```
run:
Pencarian ketemu di indek ke: 4
BUILD SUCCESSFUL (total time: 0 seconds)
```

```
1  package minggu6;
2
3  public class Searching {
4
5      static int sequentialSearch(int arr[], int x) {
6          for (int i = 0; i < arr.length; i++) {
7              if (arr[i] == x) {
8                  return i;
9              }
10         }
11         return -1;
12     }
13
14     static void bubbleSort(int arr[]) {
15         int n = arr.length;
16         for (int i = 0; i < n - 1; i++) {
17             for (int j = 0; j < n - i - 1; j++) {
18                 if (arr[j] > arr[j + 1]) {
19                     int temp = arr[j];
20                     arr[j] = arr[j + 1];
21                     arr[j + 1] = temp;
22                 }
23             }
24         }
25     }
26 }
```

```
1  package minggu6;
2
3  import static minggu6.Searching.bubbleSort;
4  import static minggu6.Searching.sequentialSearch;
5  public class SearchMain {
6
7      public static void main(String[] args) {
8          int[] data = {12, 5, 20, 25, 40, 7, 9};
9          int cari = 40;
10         int hasil;
11         hasil = sequentialSearch(data, cari);
12         if (hasil == -1) {
13             System.out.println("Pencarian tidak ketemu");
14         } else {
15             System.out.println("Pencarian ketemu di indek ke: " + hasil);
16         }
17     }
18
19     static int binarySearch(int arr[], int x) {
20         int awal = 0, akhir = arr.length - 1;
21         while (awal <= akhir) {
```

```
22          int tengah = awal + (akhir - awal) / 2;
23          if (arr[tengah] == x) {
24             return tengah;
25          }
26          if (arr[tengah] < x) {
27             awal = tengah + 1;
28          }
29          else {
30             akhir = tengah - 1;
31          }
32       }
33       return -1;
34    }
35 }
```

Output :

```
run:
Pencarian ketemu di indek ke: 6
BUILD SUCCESSFUL (total time: 0 seconds)
```