

LAPORAN PRAKTEK
ALGORITMA PEMROGRAMAN



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2022

```

1 class Sorting {
2     friend istream& operator>>(istream& in,Sorting& a);
3     friend ostream& operator<<(ostream& in,Sorting& a);
4 public:
5     void selection_sort();
6     int pencarianBiner(int low,int high);
7 private:
8     void minimum(int,int,int &);
9     void tukar(int &,int &);
10    int data[10],n;
11 };
12
13 void Sorting::minimum(int dari,int n,int &tempat){
14     int min = data [dari];
15     tempat = dari;
16     for (int i = dari+1;i<n;i++)
17     if (data[i] < min){
18         min = data [i];
19         tempat = i;
20     }
21 }
22
23 void Sorting::tukar(int &a,int &b){
24     int temp;
25     temp = a;
26     a = b;
27     b = temp;
28 }
29
30 void Sorting::selection_sort(){
31     int t;
32     for (int i = 0; i < n;i++){
33         minimum (i,n,t);
34         tukar(data[i],data[t]);
35     }
36 }
37 int Sorting::pencarianBiner(int low,int high){
38     int middle;
39     while (low <= high){
40         middle=(low+high)/2;
41         cetakBaris(low,middle,high);
42         if (kunciPencarian == data [middle])
43             return middle;
44         else if (kunciPencarian < data[middle])
45             high = middle -1;
46         else low = middle +1;
47     }
48     return -1;
49 }
50

```

Menuliskan kode

```

1  #include <conio.h>
2  #include <iostream>
3  using namespace std;
4  class sorting{
5      friend istream& operator>>(istream&, sorting&);
6      friend ostream& operator<<(ostream&, const sorting&);
7  public:
8      sorting();
9      void selection_sort();
10     int pencarianbiner(int);
11     void cetakbaris(int,int,int);
12     void selection_sort(int&, int&);
13     void cari_data();
14  private:
15     void minimum(int, int, int&);
16     void tukar(int&, int&);
17     int data[100], n;
18 };
19
20 sorting::sorting(){
21     n=10;
22 }
23
24 void sorting::selection_sort(){
25     int t;
26     for(int i=0; i<n; i++){
27         minimum(i,n,t);
28         tukar(data[i], data[t]);
29     }
30 }
31
32 void sorting::minimum(int dari, int n,int& tempat){
33     int min=data[dari];
34     tempat=dari;
35     for(int i=dari+1; i<n; i++){
36         if(data[i]<min){
37             min=data[i];
38             tempat=i;
39         }
40     }
41 }

```

Memodifikasi kode

```

42
43 void sorting::tukar(int&a, int&b){
44     int temp;
45     temp=a;
46     a=b;
47     b=temp;
48 }
49
50 void sorting::cari_data()
51 {
52     int posisi=0, qq;
53     cout <<"cari data : "; cin >> qq;
54     for(int i=0; i<n; i++){
55         if(data[i]==qq) {
56             posisi = i+1;
57         }
58     }
59     if(pencarianbiner(qq)==-1) cout <<"tdk ada"<<endl;
60     else cout << "Data ditemukan di posisi : "<< posisi << endl;
61 }
62
63
64 int sorting::pencarianbiner(int qq){
65     int midle, low=0, high=n;
66     while(low<=high){
67         midle=(low+high)/2;
68         cetakbaris(low,midle,high);
69         if(qq==data[midle])
70             return midle;
71         else if(qq< data[midle])
72             high = midle-1;
73         else low=midle+1;
74     }
75     return -1;
76 }
77
78 void sorting::cetakbaris(int low,int midle,int high){
79     cout<<"low "<<low<<" \nmidle "<<midle<<" \nhigh "<<high<<endl;
80 }

```

```

81
82
83 istream& operator>>(istream& in, sorting& A){
84     cout << "Masukkan jumlah data : "; cin >> A.n;
85     for(int i=0; i<A.n;i++){
86         cout <<"Data["<<i<<"] : ";
87         in >> A.data[i];
88     }
89     return in;
90 }
91
92 ostream& operator<<(ostream& out, const sorting& A){
93     for(int i=0; i<A.n;i++){
94         out<<A.data[i]<<" ";
95     }
96     return out;
97 }
98
99 int main(){
100     sorting X;
101     cin >> X;
102     cout <<"Data sebelum sorting :\n";
103     cout <<X<<endl;
104     X.selection_sort();
105     cout <<"Data sesudah sorting :\n";
106     cout <<X<<endl<<endl;
107     X.cari_data();
108     getch();
109     return 0;
110 }

```

```

E:\KULIAH\SEMUA PRAKTIK II\Alpro\Prak Alpro\7\Kode\prakmodif.exe
Masukkan jumlah data : 3

```

Masukkan jumlah data

```
E:\KULIAH\SEMUA PRAKTIK II\Alpro\Prak Alpro\7\Kode\prakmodif.exe
Masukkan jumlah data : 3
Data[0] : 1
Data[1] : 4
Data[2] : 2
Data sebelum sorting :
1 4 2
Data sesudah sorting :
1 2 4

cari data : 2
low 0
midle 1
high 3
Data ditemukan di posisi : 2

-----
Process exited after 32.14 seconds with return value 0
Press any key to continue . . .
```

Hasil



Studi kasus

Link

<https://replit.com/@PaulJoych/P7#lib/data.h>

<https://github.com/142Eko/Prak-alpro/tree/master/7/Kode>