BAB VIII

RECORD

Tipe record hamper sama dengan array yaitu kumpulan data. Perbedaaan array dengan record adalah pada array semua elemen harus bertpe sama sedangkan pada record tipe pada elemen bisa saja berbeda.

Sehari – hari record lebih banyak digunakan dibandingkan array.

Bentuk umum deklarasi record adalah :

**Type**

 **Pengenal = Record**

 **Nama field 1 : tipe**

 **Nama field 2 : tipe**

 **Nama field 3 : tipe**

 **…**

 **Nama field 1n: tipe**

 **End**

Atau

**Var**

 **Pengenal = Record**

 **Nama field 1 : tipe**

 **Nama field 2 : tipe**

 **Nama field 3 : tipe**

 **…**

 **Nama field 1n: tipe**

 **End**

Contoh : **nilai.pas**

**Uses crt;**

**Const**

 **N = 2;**

**Type nilai = record**

 **NIM : String;**

 **NAMA : String;**

 **N1 : Real;**

 **N2 : Real;**

 **N3 : Real;**

 **IP : Real;**

 **Grade : Char;**

 **End;**

**Var**

 **MHS : array [1..N] of Nilai;**

 **I : integer;**

 **Begin**

 **Clrscr;**

 **For I:=1 to N do**

 **Begin**

 **Writeln(‘Mahasiswa ke ‘,I);**

 **Write(‘NIM : ‘);Readln(Mhs[I].NIM);**

 **Write(‘NAMA : ‘);Readln(Mhs[I].NIM);**

 **Write(‘Nilai 1 : ‘);Readln(Mhs[I].N1);**

 **Write(‘Nilai 2 : ‘);Readln(Mhs[I].N2);**

 **Write(‘Nilai 3 : ‘);Readln(Mhs[I].N3);**

 **End;**

 **For I:=1 to N do**

 **Begin**

 **MHS[I].IP:=(Mhs[I].N1+Mhs[I].N2+Mhs[I].N3/3;**

 **If MHS[I].IP>=80 then Mhs[I].GRADE:=’A’ else**

 **If (MHS[I].IP<80) AND (Mhs[I].IP >=70 then MHS[I]GRADE:=’B’ ELSE**

 **If (MHS[I].IP<70) AND (Mhs[I].IP >=60 then MHS[I]GRADE:=’C’ ELSE**

 **If (MHS[I].IP<60 AND (Mhs[I].IP >=50 then MHS[I]GRADE:=’D’ ELSE**

 **MHS[I].GRADE:= ‘E’;**

 **End;**

 **Writeln (‘-----------------------------------------------------------------------------------------------------‘);**

 **Writeln (‘No Nim Nama Mahasiswa Nilai IP Grade ‘);**

 **Writeln (‘ 1 2 3 ‘);**

 **Writeln (‘----------------------------------------------------------------------------------------------------‘);**

 **For I := 1 to N do**

 **Begin**

**Writeln(I:2,’ ‘,Mhs[I].NIM:7,’ ‘,Mhs[I].NAMA:10,’ ‘,MHS[i].N1:5:2,’ ‘,Mhs[I].N2:5:2,+’ ‘,Mhs[I].N3:5:2,’ ‘,Mhs[I].IP:5:2.’ ‘,MHS[I].GRADE:2);**

 **End;**

 **Readln;**

 **End.**

**Statement WITH**

Statement WITH dapat membantu membuat Statement menjadi lebih pendek.

Contoh: nilai2.pas

Uses crt;

Const

 N=2;

Type Nilai = Record

 NIM : String;

 Nama : String;

 N1 : String;

 N2 : Real;

 N3 : Real;

 IP : Real;

 Grade : Char;

 End;

Var

Mhs : array [1..N] of Nilai;

I : Integer;

Begin

Clrscr;

For I:=1 to N do

Begin

 Writeln(‘Mahasiswa ke ‘,I);

 Write (‘NIM :’);Readln(NIM);

 Write (‘NAMA :’);Readln(NAMA);

 Write(‘NILAI 1:’);Readln(N1);

 Write(‘NILAI 2:’);Readln(N2);

 Write(‘NILAI 3:’);Readln(N3);

 End;

End;

For I:=1 to N do

Begin

With Mhs[I] do

Begin

IP:=(N1+N2+N3)/3;

If IP>=80 then GRADE:=’A’else

If(IP<80)and (IP>=70)then GRADE:=’B’ else

If(IP<70)and (IP>=60)then GRADE:=’C’ else

If(IP<60) then GRADE:=’D’ else GRADE:=E;

End;

End;

**Writeln (‘-----------------------------------------------------------------------------------------------------‘);**

 **Writeln (‘No Nim Nama Mahasiswa Nilai IP Grade ‘);**

 **Writeln (‘ 1 2 3 ‘);**

 **Writeln (‘----------------------------------------------------------------------------------------------------‘);**

 **For I := 1 to N do**

 **Begin**

 **With Mhs[I] do**

 **Begin**

**Writeln(I:2,’ ‘,NIM:7,’ ‘,NAMA:10,’ ‘,N1:8:2,’ ‘,N2:8:2,+’ ‘,N3:8:2,’ ‘,IP:5:2.’ ‘,GRADE:2);**

 **End;**

 **End;**

 **Readln;**

 **End.**

Contoh : urutmhs3.pas

Uses Crt;

Type

 DataMhs=Record

 Nomor : integer;

 Nama : String;

 IP : Real;

 End;

Var

JumlahMHS,I,j:Integer;

Mahasiswa :array[1..20] of DataMHS;

Dummy :DataMhs;

Begin

 Clrscr;

 Write(‘Jumlah Mahasiswa: ‘);Readln(JumlahMhs);

 For I:=1 to JumlahMhs do

 Begin

 With Mahasiswa[i] do

 Begin

 Write(‘Nomor Mahasiswa ke : ‘,i:2,’?’); Readln (Nomor);

 Write(‘Nama Mahasiswa ke : ‘,i:2,’?’); Readln (Nama);

 Write(‘Indeks Prestasi ke : ‘,i:2,’?’); Readln (IP);

 End;

End;

For I:= 1 to JumlahMhs-1 do

For J:= 1 to JumlahMhs-I do

If Mahasiswa[j].nomor>Mahasiswa[j+1].nomor then

Begin

 Dummy:=Mahasiswa[J];

 Mahasiswa[j]:=Mahasiswa[J+1];

 Mahasiswa[J+1]:= dummy;

End;

Writeln(‘----------------------------------------------------‘);

Writeln(‘Nomor Nama Mahasiwa IP ‘);

Writeln (‘----------------------------------------------------‘);

For I:=1 to JumlahMhs do

Begin

 With Mahasiswa[i] do

 Begin

 Writeln(Nomor:5,Nama:20,Ip:8:2);

 End;

End;

End.

LATIHAN

Buat program dengan menggunakan recor untuk membuat tabel daftar pegawai. Output yang ditampilkan adalah sebagai berikut :

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
| No | NIP | Nama | Alamat | Kota | Telepon |
| 1 | 4127.80.32 | Endah | Jl. Angin Ribut. No.15 | Antah | 7653456 |
| 2 | 4127.80.33 | Xena | Jl. Angin Ribut. No.15 | Antah | 4567896 |
| 3 | 4127.90.11 | Aryo | Jl. Topan No.5 | Berantah | 7645424 |
| 4 | 4127.90.15 | Hercules | Jl. Serenade No. 31 | Berantah | 7345352 |
| 5 | 4127.70.35 | Faiq | Jl. Nyarenda No. 20 | Berantah | 7346532 |
| 6 | 4127.70.25 | Syeren | Jl. Alarm No. 32 | Berantah | 7445345 |
| 7 | 4127.70.33 | Jose | Jl. Genduruwo No. 1 | Kuburan | 4654524 |
| 8 | 4127.60.11 | Richard | Jl. Kuntilanak No. 2 | Kuburan | 7463552 |
| 9 | 4127.60.05 | Yongseng | Jl. Pocong Jompo No. 5 | Kuburan | 5636353 |
| 10 | 4127.50.25 | Adi | Jl. Kolong wewe No.3 | Kuburan | 7675675 |