


Array

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Array

- ▶ Array didefinisikan sebagai suatu kumpulan dimana elemen–elemennya berjenis data sama (homogen)
 - ▶ Suatu array mempunyai jumlah komponen yang banyaknya tetap dan ditunjukkan oleh suatu indeks yang disebut **index type** (tipe indeks)
 - ▶ Setiap komponene dalam array dapat diakses dengan menunjukkan nilai indeksnya
- 

Example

Var

a1, a2, a3, a4 : integer

Var

a : array [1..4] of integer

Deklarasi Biasa

Deklarasi Array

Macam Array

- ▶ Array 1 dimensi
 - daftar yang linier atau sebuah kolom
- ▶ Array Multidimensi
 - matriks yang jumlah kolomnya lebih dari satu

Array 1 Dimensi

VAR

nama_array : ARRAY [index] OF typedata;

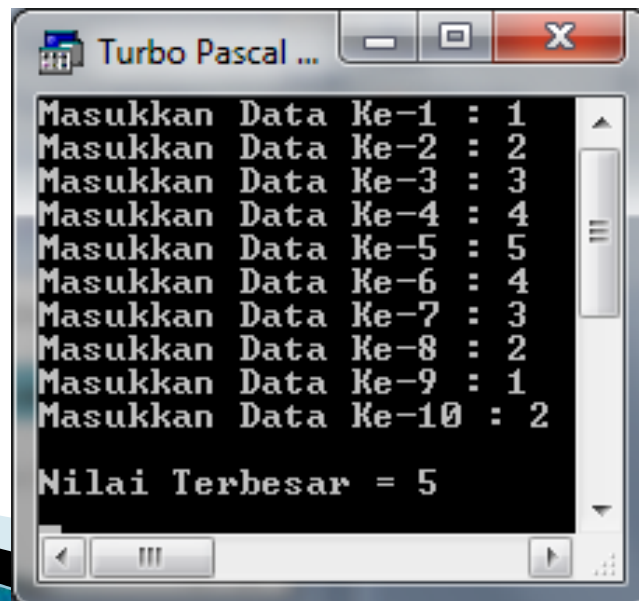
Contoh

Var x : array [1..10] of integer;

x = $\begin{pmatrix} x[1] \\ x[2] \\ \dots \\ x[10] \end{pmatrix}$

Contoh 1

- ▶ Misal terdapat 10 bilangan integer positif yang berbeda disimpan di dalam suatu array A.
- ▶ Tentukan integer yang terbesar diantara 10 integer tersebut dengan suatu program Pascal.



The image shows a screenshot of a Turbo Pascal program window. The window title is "Turbo Pascal ...". The program prompts the user to enter 10 data points, labeled "Ke-1" through "Ke-10". The user has entered the following values: 1, 2, 3, 4, 5, 4, 3, 2, 1, and 2. The program then outputs the maximum value, which is 5.

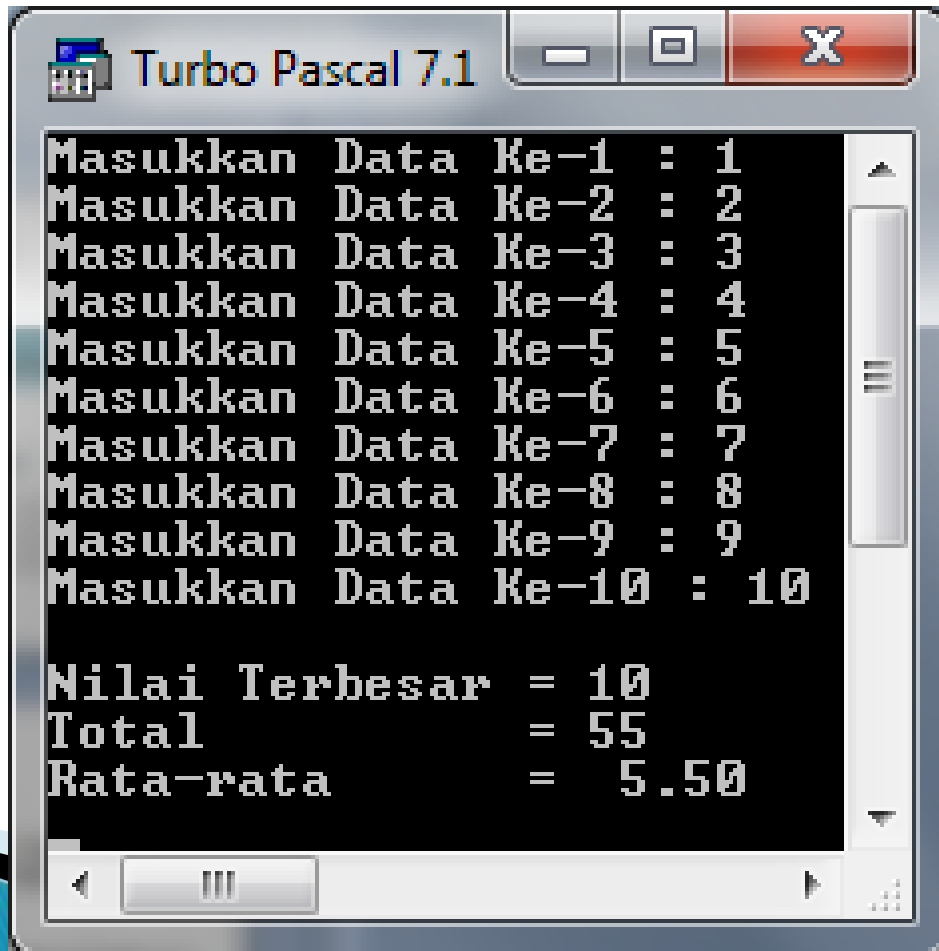
```
Masukkan Data Ke-1 : 1
Masukkan Data Ke-2 : 2
Masukkan Data Ke-3 : 3
Masukkan Data Ke-4 : 4
Masukkan Data Ke-5 : 5
Masukkan Data Ke-6 : 4
Masukkan Data Ke-7 : 3
Masukkan Data Ke-8 : 2
Masukkan Data Ke-9 : 1
Masukkan Data Ke-10 : 2

Nilai Terbesar = 5
```

```
program maksimum;
uses crt;
var
  a : array [1..10] of integer;
  i,max: integer;
begin
  clrscr;
  for i := 1 to 10 do
  begin
    write ('Masukkan Data Ke-',i,' : ');
    readln (a[i]);
  end;
  max:=a[1];
  for i:= 1 to 10 do
  begin
    if a[i]>max then
      max :=a[i];
  end;
  writeln;
  writeln ('Nilai Terbesar = ',max);
  readln;
end.
```

Contoh 2

- ▶ Buat program yang menghitung rata-rata dari 10 bilangan tersebut



```
Turbo Pascal 7.1
Masukkan Data Ke-1 : 1
Masukkan Data Ke-2 : 2
Masukkan Data Ke-3 : 3
Masukkan Data Ke-4 : 4
Masukkan Data Ke-5 : 5
Masukkan Data Ke-6 : 6
Masukkan Data Ke-7 : 7
Masukkan Data Ke-8 : 8
Masukkan Data Ke-9 : 9
Masukkan Data Ke-10 : 10

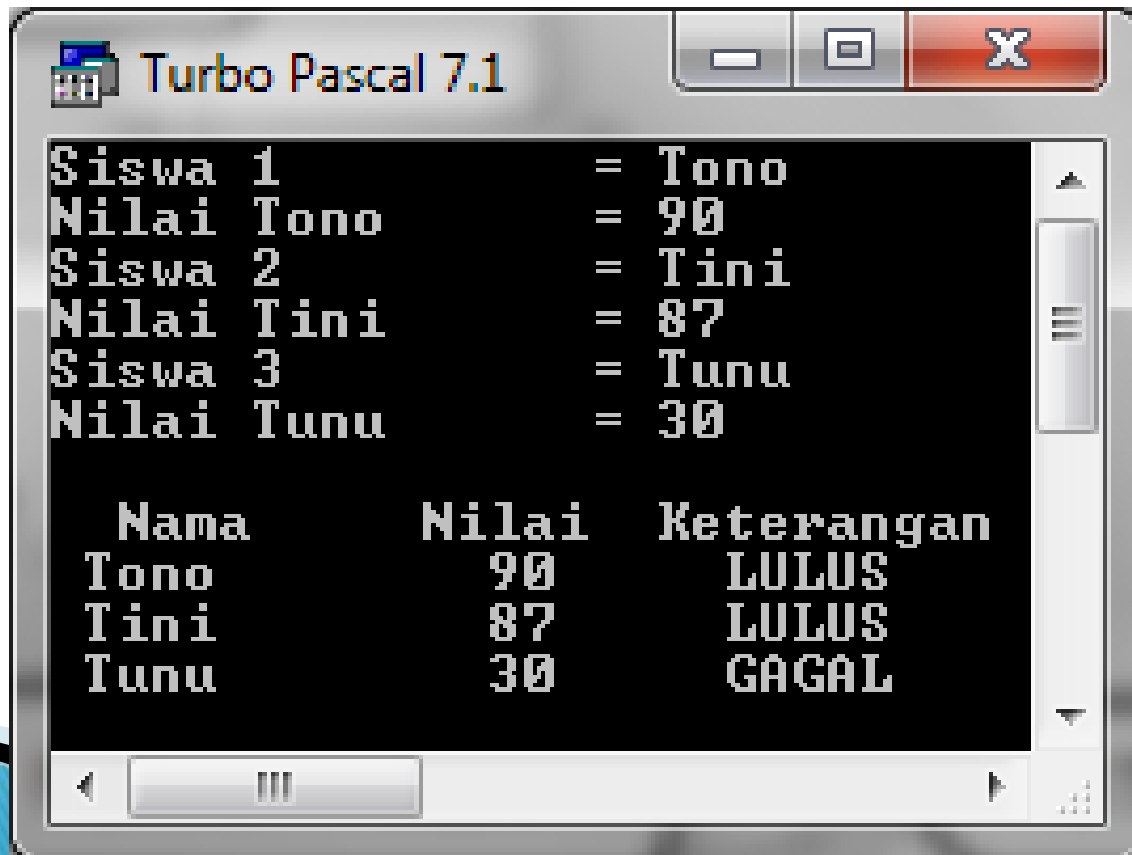
Nilai Terbesar = 10
Total          = 55
Rata-rata      = 5.50
```



```
ARRAY6.PAS
program maksimum;
uses crt;
var
  a : array [1..10] of integer;
  i,max,total: integer;
  rata : real;
begin
  clrscr;
  for i := 1 to 10 do
  begin
    write ('Masukkan Data Ke-',i,' : ');
    readln (a[i]);
  end;
  max:=a[1];
  total:=0;
  for i:= 1 to 10 do
  begin
    if a[i]>max then
      max :=a[i];
      total:=total+a[i];
  end;
  rata:=total/10;
  writeln;
  writeln ('Nilai Terbesar = ',max);
  writeln ('Total          = ',total);
  writeln ('Rata-rata          = ',rata:5:2);
  readln;
end.
```

Tugas

- ▶ Buatlah Program untuk menginputkan nilai 10 orang siswa. Jika Nilai ≥ 60 maka keterangan **Lulus**



```
Turbo Pascal 7.1
Siswa 1 = Tono
Nilai Tono = 90
Siswa 2 = Tini
Nilai Tini = 87
Siswa 3 = Tunu
Nilai Tunu = 30

Nama      Nilai  Keterangan
Tono      90     LULUS
Tini      87     LULUS
Tunu      30     GAGAL
```

Array Multidimensi

VAR

nama_array : ARRAY [indeksbaris,indekskolom] OF typedata;

Contoh

Var A : array [1..3,1..4] of integer;

A[1,1]

A[1,2]

A[1,3]

A[1,4]

A[2,1]

A[2,2]

A[2,3]

A[2,4]

A[3,1]

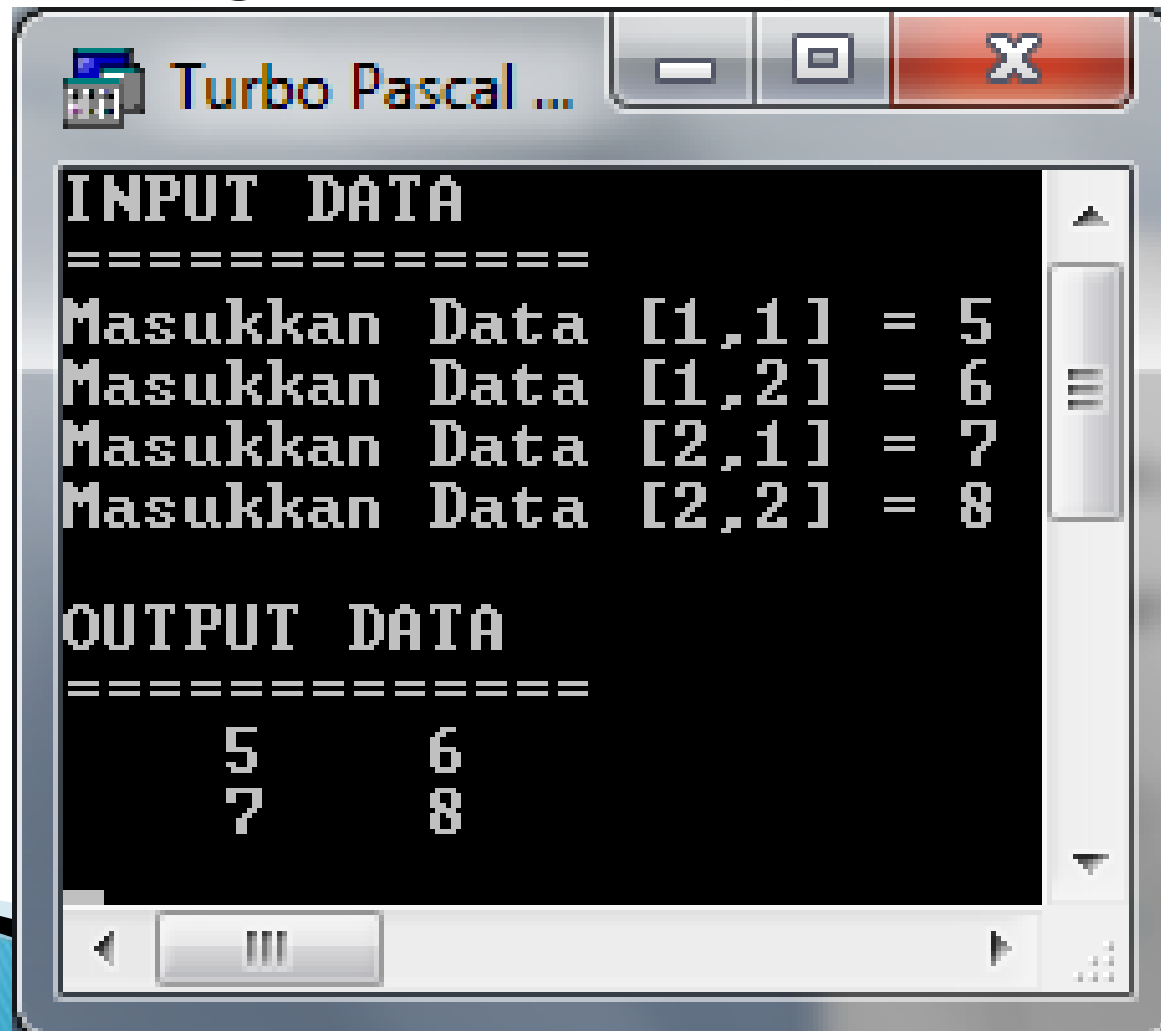
A[3,2]

A[3,3]

A[3,4]

Contoh 3

- ▶ Buatlah Program Matriks seperti di bawah ini



The screenshot shows a Turbo Pascal window titled "Turbo Pascal ...". The window contains a program that prompts the user to input a 2x2 matrix. The input is displayed as follows:

```
INPUT DATA
=====
Masukkan Data [1,1] = 5
Masukkan Data [1,2] = 6
Masukkan Data [2,1] = 7
Masukkan Data [2,2] = 8
```

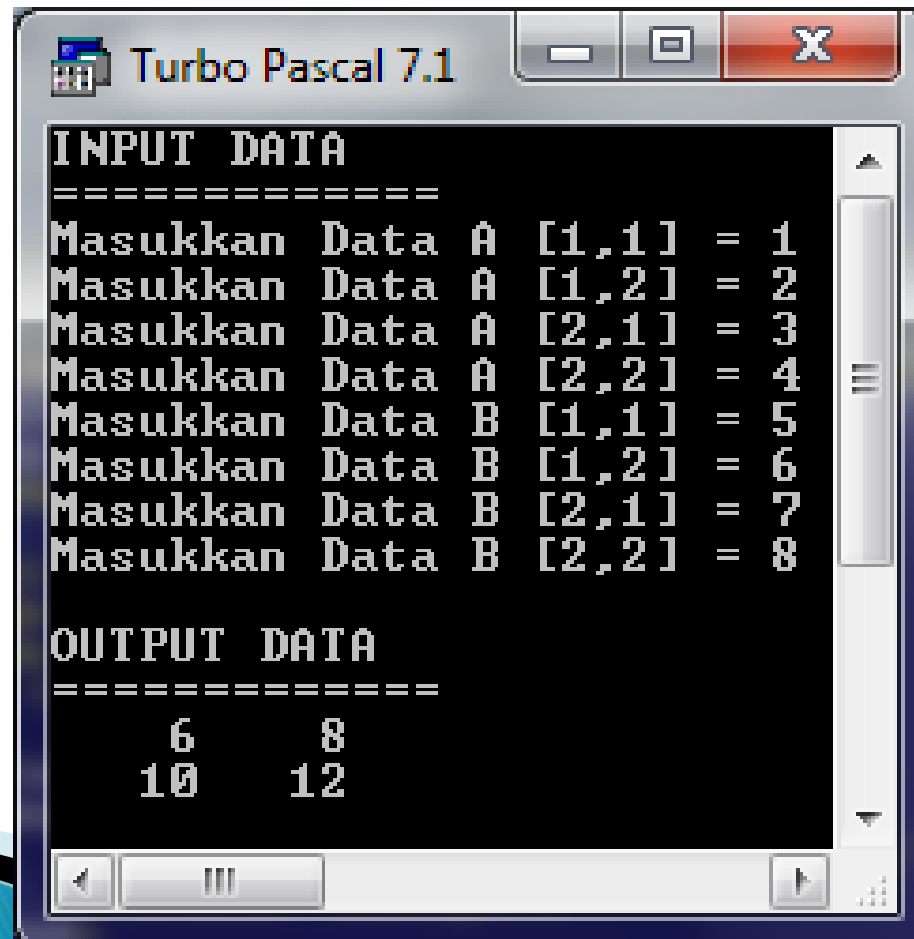
The output of the program is displayed as follows:

```
OUTPUT DATA
=====
    5    6
    7    8
```

```
[[ ] ARRAY3.PAS
program matriks;
uses crt;
var
  a : array [1..2,1..2] of integer;
  i,j : integer;
begin
  clrscr;
  writeln ('INPUT DATA');
  writeln ('=====');
  for i := 1 to 2 do
  begin
    for j:= 1 to 2 do
    begin
      write ('Masukkan Data [',i,',',j,'] = ');
      readln (a[i,j]);
    end;
  end;
  writeln;
  writeln ('OUTPUT DATA');
  writeln ('=====');
  for i:= 1 to 2 do
  begin
    for j:= 1 to 2 do
    begin
      write (a[i,j]:5);
    end;
    writeln;
  end;
  readln;
end.
```

Contoh 4

- ▶ Buatlah program penjumlahan matriks seperti di bawah ini



The screenshot shows a Turbo Pascal 7.1 window with a black background and white text. The window title is 'Turbo Pascal 7.1'. The text is as follows:

```
INPUT DATA
=====
Masukkan Data A [1,1] = 1
Masukkan Data A [1,2] = 2
Masukkan Data A [2,1] = 3
Masukkan Data A [2,2] = 4
Masukkan Data B [1,1] = 5
Masukkan Data B [1,2] = 6
Masukkan Data B [2,1] = 7
Masukkan Data B [2,2] = 8

OUTPUT DATA
=====
      6      8
     10     12
```