

STRUKTUR PERULANGAN FOR – DO (LANJUTAN)

Temu 13

Perulangan For Bersarang

- Perulangan bersarang adalah perulangan yang berbeda di dalam perulangan yang lainnya.
- Perulangan yang lebih dalam akan diproses terlebih dahulu sampai habis, kemudian perulangan yang lebih luar baru akan bertambah
- Mengerjakan perulangan yang lebih dalam lagi mulai dari nilai awalnya dan seterusnya.

Contoh 1:

Program ForBersarang;

Deklarasi

I,J : integer

Algoritma

For I = 1 to 5 Do

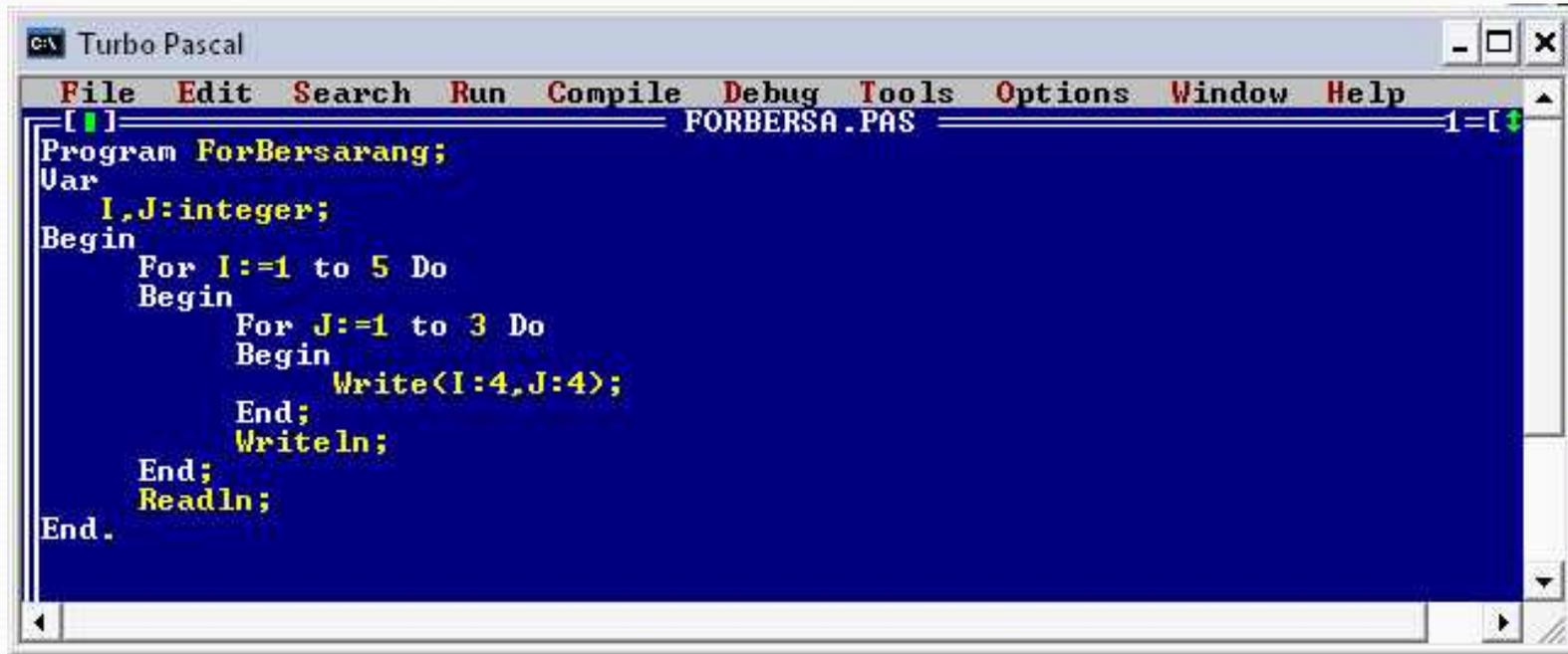
 For J = 1 to 3 Do

 Write(I,J)

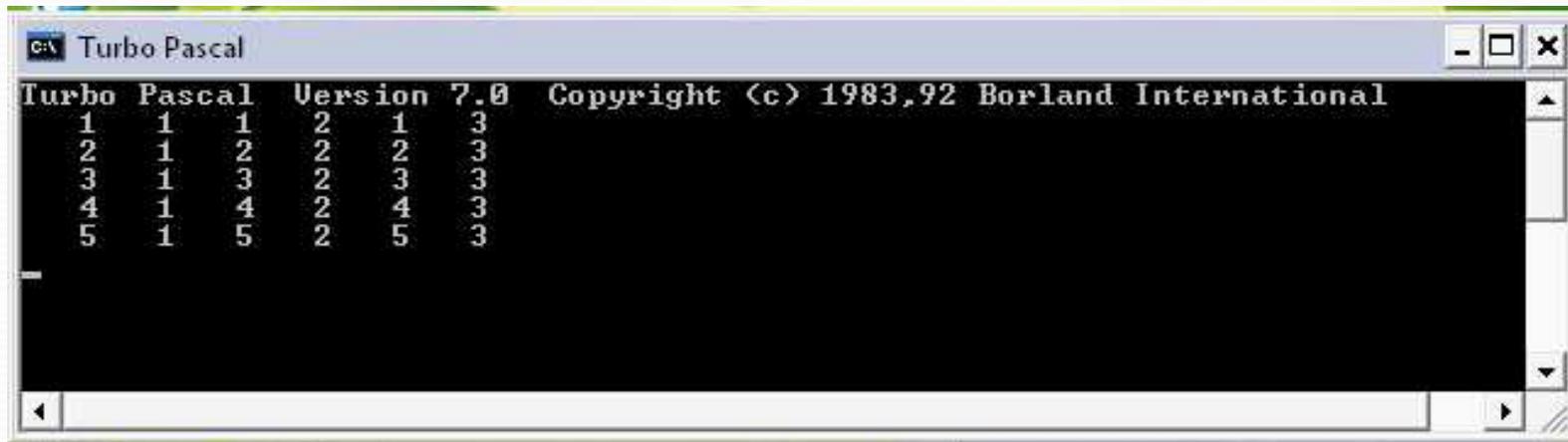
 Endfor

Endfor

Contoh



```
File Edit Search Run Compile Debug Tools Options Window Help
FORBERSA.PAS
Program ForBersarang;
Var
  I,J:integer;
Begin
  For I:=1 to 5 Do
  Begin
    For J:=1 to 3 Do
    Begin
      Write(I:4,J:4);
    End;
    Writeln;
  End;
  Readln;
End.
```



```
Turbo Pascal Version 7.0 Copyright (c) 1983,92 Borland International
1 1 1 2 1 3
2 1 2 2 2 3
3 1 3 2 3 3
4 1 4 2 4 3
5 1 5 2 5 3
```

Contoh 2:

Program Bintang

Deklarasi

x,y : integer

Algoritma

for x = 1 to 5 do

for y = 1 to x do

write('*')

writeln

endfor

endfor

End Algoritma

The screenshot shows the Free Pascal IDE window titled "Free Pascal IDE". The menu bar includes File, Edit, Search, Run, Compile, Debug, Tools, Options, Window, and Help. The main editor area displays the following Pascal code:

```
Program Bintang1;  
Uses crt;  
var  
    x,y : integer;  
begin  
    clrscr;  
    for x := 1 to 5 do  
    begin  
        for y := 1 to x do  
            write('*',' ');  
            writeln;  
        end;  
        readln;  
    end;  
end.
```

The status bar at the bottom shows the time 9:32 and keyboard shortcuts: F1 Help, F2 Save, F3 Open, Alt+F9 Compile, F9 Make, and Alt+F10 Local menu.



Contoh 2:

Program Bintang2

Deklarasi

x,y : integer

Algoritma

for x = 1 to 5 do

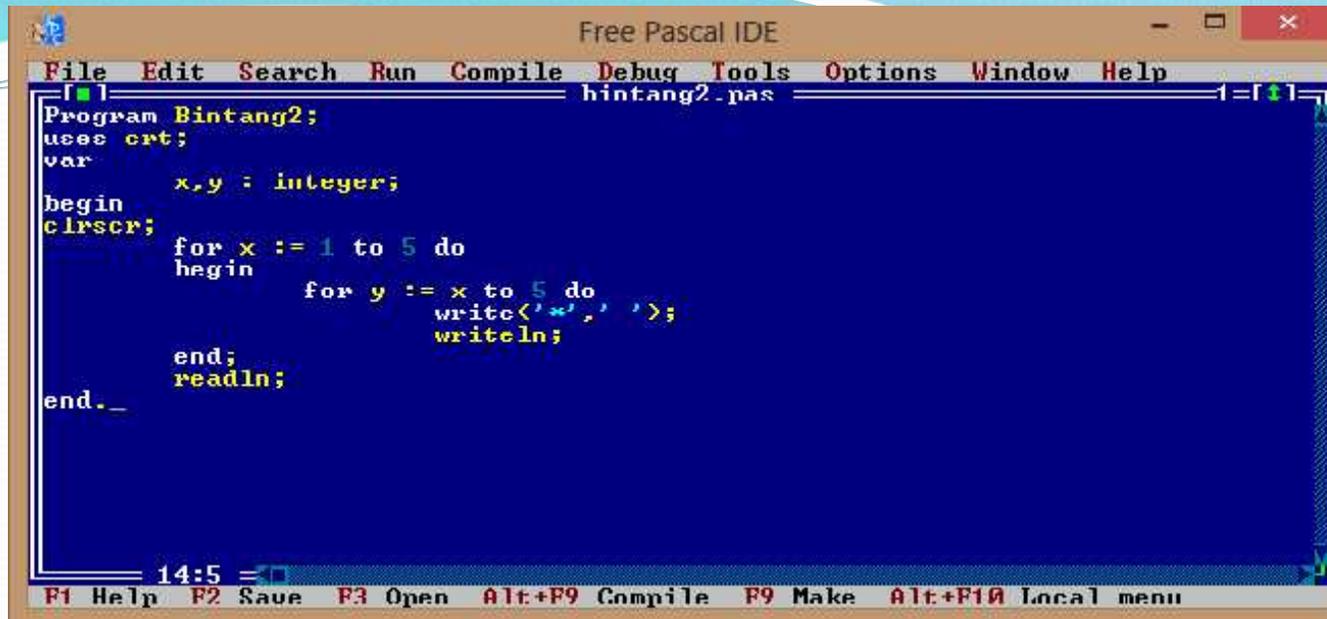
 for y = x to 5 do

 write('*')

 endfor

endfor

End Algoritma



The image shows a screenshot of the Free Pascal IDE window. The title bar reads "Free Pascal IDE". The menu bar includes "File", "Edit", "Search", "Run", "Compile", "Debug", "Tools", "Options", "Window", and "Help". The main text area contains the following Pascal code:

```
Program Bintang2;
uses crt;
var
  x,y : integer;
begin
clrscr;
  for x := 1 to 5 do
  begin
    for y := x to 5 do
      write('*',' ');
      writeln;
    end;
    readln;
  end;
end._
```

The status bar at the bottom of the window displays the time "14:5" and a series of function key shortcuts: "F1 Help", "F2 Save", "F3 Open", "Alt+F9 Compile", "F9 Make", and "Alt+F10 Local menu".



The image shows a screenshot of the Free Pascal IDE window after execution. The title bar reads "Free Pascal IDE". The main text area displays the output of the program, which is a pattern of asterisks forming a right-angled triangle:

```
* * * * *
* * * *
* * *
* *
*
```

The output is displayed on a black background with white text. A vertical scrollbar is visible on the right side of the text area.

Contoh 3

Program Pagar

Deklarasi

x,y : integer

Algoritma

for x = 1 to 5 do

for y = 1 to 5 do

if (x mod 2 <> 0) then

write('*')

else

write('#')

endif

writeln

endfor

endfor

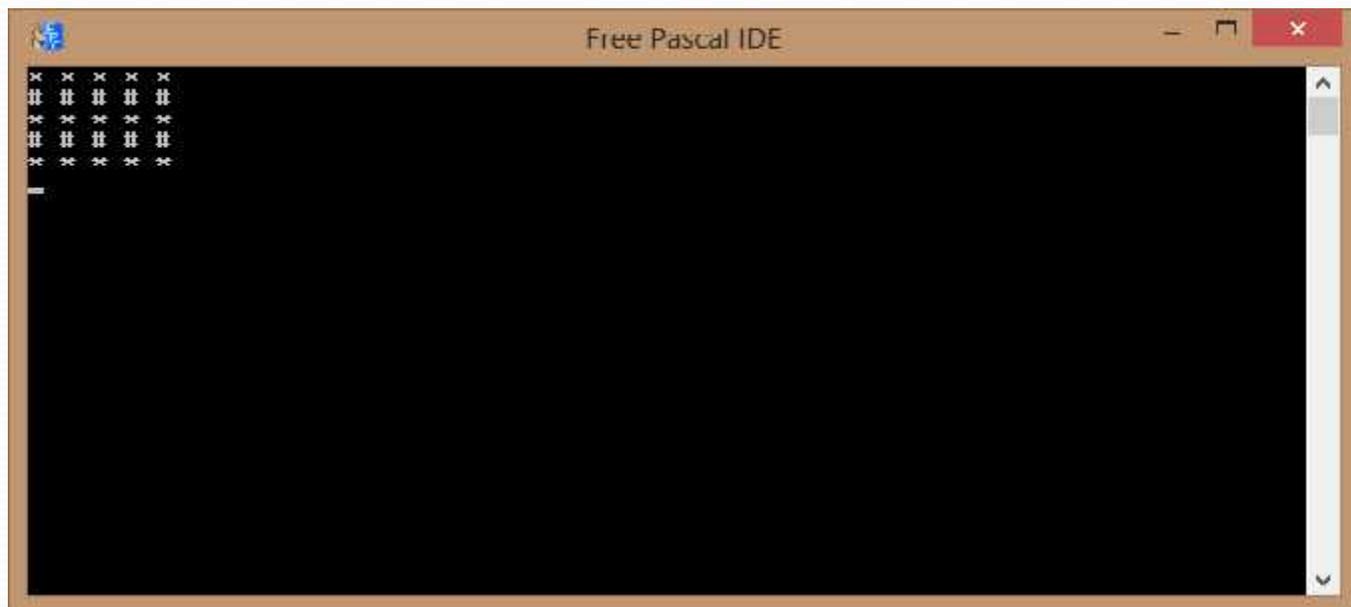
End Algoritma



The image shows a screenshot of the Free Pascal IDE window. The title bar reads "Free Pascal IDE". The menu bar includes "File", "Edit", "Search", "Run", "Compile", "Debug", "Tools", "Options", "Window", and "Help". The main editor area displays the following Pascal code:

```
Program Pagar;  
uses crt;  
var  
    x,y : integer;  
begin  
  clrscr;  
  for x := 1 to 5 do  
  begin  
    for y := 1 to 5 do  
    begin  
      if (x mod 2 <> 0) then  
        write('*',' ');  
      else  
        write('#',' ');  
      end;  
      writeln;  
    end;  
  end;  
  readln;  
end.
```

The status bar at the bottom shows the time "19:5" and keyboard shortcuts: "F1 Help", "F2 Save", "F3 Open", "Alt+F9 Compile", "F9 Make", and "Alt+F10 Local menu".



The image shows a screenshot of the Free Pascal IDE window displaying the output of the program. The title bar reads "Free Pascal IDE". The output area shows a 5x5 grid of characters:

```
x x x x x  
# # # # #  
* * * * *  
# # # # #  
* * * * *
```

The rest of the output area is blank.

Latihan

1. Buatlah Program dengan output sebagai berikut:

1

22

333

4444

2. Buatlah Program dengan output sebagai berikut:

4321

321

21

1