



LAMPIRAN

Lampiran 1

```

Program SEQUENTIALCOLOR;
uses crt;

type larik = array[1..20,1..20] of integer;
      warna = array[1..20] of integer;

var
  V,i,j,k,max : integer;
  L,G         : larik;
  C,P         : Warna;
  flag        : boolean;

Begin
  clrscr;
  write('Jumlah Titik = ');
  readln(V);
  for i := 1 to V do
    Begin
      for j := 1 to i do
        Begin
          L[i,j] := j;
        end;
      end;
    end;

  Writeln;
  Writeln('G(a,b) adalah garis yang menghubungkan a dengan b');
  Writeln('isi dengan 0 jika a dan b tidak berhubungan');
  Writeln('isi dengan 1 jika a dan b berhubungan');

  for i := 1 to V do
    Begin
      for j := 1 to V do
        Begin
          Write ('G(',i,',',j,') = ');
          readln (G[i,j]);
        end;
      end;
    end;

  C[1] := 1;
  for i:= 2 to V do
    Begin
      flag := true;
      j := 1;
      While (j < i) and (flag) do
        Begin
          C[i] := C[j];
          if (G[i,j] = 1) then
            Begin
              C[i] := succ(C[i]);
              flag := true;
            end
          else
            Begin
              C[i]:= C[j];

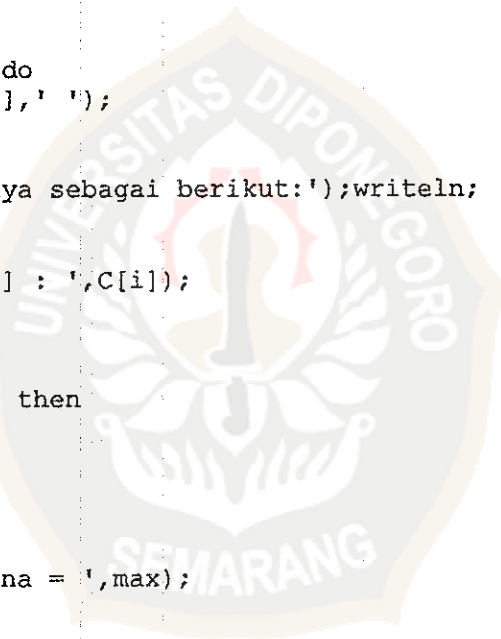
```

```

        flag := false;
        For k := j+1 to i-1 do
            Begin
                if (C[i] = C[k]) and (G[i,k] = 1) then
                    C[i] := k;end;
            end;
        inc(j);
    end;
end;

clrscr;
writeln ('Algoritma SEQUENTIALCOLOR');
writeln ('Banyaknya titik dari graf = ',V);
writeln ('Matrik incidentnya :');
for i := 1 to V do
    Begin
        writeln;
        for j := 1 to V do
            write (G[i,j], ' ');
        end;
    writeln;writeln;
    writeln ('Pewarnaannya sebagai berikut:');writeln;
    for i:=1 to V do
        Begin
            Writeln('C[' ,i, ']' : ',C[i]);
        end;
    for i := 1 to V-1 do
        begin
            if C[i] < C[i+1] then
                max := C[i+1]
            else
                max := C[i];
            end;
        writeln;
        writeln ('Jumlah warna = ',max);
    readln;
end.

```



Algoritma SEQUENTIALCOLOR
Banyaknya titik dari graf = 8
Matriks incidentnya :

```
0 1 0 0 0 0 1 1
1 0 0 1 1 1 1 1
0 0 0 1 0 1 1 0
0 1 1 0 1 1 1 0
0 1 0 1 0 1 0 0
0 1 1 1 1 0 1 0
1 1 1 1 0 1 0 1
1 1 0 0 0 0 1 0
```

Pewarnaannya sebagai berikut :

```
C[1] : 1
C[2] : 2
C[3] : 1
C[4] : 3
C[5] : 1
C[6] : 4
C[7] : 5
C[8] : 3
```

Jumlah warna = 5



Lampiran 2

```

Program Backtrackcolor;

uses crt;

type TArray = packed array[1..20] of integer;
      TArray1 = packed array[1..20, 1..20] of integer;

var i, j, k : integer;
    N, M, sum : integer;
    Ok, Fwd : boolean;
    C : TArray;
    G : TArray1;

Procedure GetData(var G : TArray1);
var i, j : integer;
begin
  for i := 1 to N do
    for j := 1 to N do
      begin
        write ('G[' , i , ', ' , j , ' ] : ');
        readln (G[i,j]);
      end;
    end;
  end;

Procedure Color(var j :integer);
var i : integer;
begin
  k := succ(C[j]);
  i := 1;
  Ok := true;
  repeat
    if G[i,j] = 1 then
      begin
        if k <> C[i] then
          Ok := true
        else
          begin
            Ok := false;
            inc(k);
            i := 0;
          end;
        end
      else
        Ok := true;
        inc(i);
    until (i = j) and (OK = true);
    if k <= M then
      begin
        C[j] := k;
        inc(j);
        Fwd := true;
      end
    else
      Fwd := false;
  end;
end;

```

```

Begin
clrscr;
write ('Banyaknya titik : ');
readln (N);
write ('Banyaknya warna yang akan dipakai : ');
readln (M);
GetData(G);
clrscr;
writeln ('Algoritma BACKTRACKCOLOR');
writeln ('Banyaknya titik = ',N);
writeln ('Matriks incidentnya :');
for i := 1 to N do
  begin
    writeln;
    for j := 1 to N do
      write (G[i,j], ' ');
    end;
  writeln;writeln;
  writeln ('Banyaknya warna yang akan dipakai = ',M);
  writeln;
  C[1] := 1;
  for i := 2 to N do
    begin
      C[i] := 0;
    end;
  j := 2;
  Fwd := true;
  while j <= N do
    begin
      if Fwd then Color(j)
      else
        begin
          C[j] := 0;
          dec(j);
          if j <> 1 then Color(j)
          else
            writeln('tidak ada pewarnaan M warna untuk G. ');
          end;
        end;
    end;
  for i := 1 to N do
    begin
      writeln('C[' ,i, ' ] : ',C[i]);
    end;
  readln;
end.

```

Algoritma BACKTRACKCOLOR

Banyaknya titik = 8

Matriks incidentnya :

```
0 1 0 0 0 0 1 1
1 0 0 1 1 1 1 1
0 0 0 1 0 1 1 0
0 1 1 0 1 1 1 0
0 1 0 1 0 1 0 0
0 1 1 1 1 0 1 0
1 1 1 1 0 1 0 1
1 1 0 0 0 0 1 0
```

Banyaknya warna yang akan dipakai = 4

```
C[1] : 1
C[2] : 2
C[3] : 2
C[4] : 1
C[5] : 3
C[6] : 4
C[7] : 3
C[8] : 4
```

