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| OSP | 2013 |

1. No.26

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| Bila diberi masukan bilangan 77, maka program akan memberikan keluaran …? |
| var  N,hasil: integer;  procedure solve(X:integer);  begin  if (X>1) then  begin  hasil:=hasil+1;  solve(X div 2 + X mod 2);  end;  end;  begin  readln(N);  hasil:=0;  solve(N);  writeln(hasil);  end. |
| Kode Program Dimodifikasi : *(Hasil Modifikasi Diwarnai)* |
| var  N,hasil: integer;  procedure solve(X:integer);  begin  if (X>1) then  begin  hasil:=hasil+1;  writeln(hasil:7,x:7,(x div 2):7,(x mod 2):7,((x div 2)+(x mod 2)):7);  solve(X div 2 + X mod 2);  end;  end;  begin  N:=77;  hasil:=0;  writeln('hasil':7,'x':7,'div':7,'mod':7,'div+mod':10);  solve(N);  writeln(hasil);  readln;  end. |
| Output Dari Kode Program Yang Dimodifikasi : |
| x div mod div+mod hasil  77 38 1 39 1  39 19 1 20 2  20 10 0 10 3  10 5 0 5 4  5 2 1 3 5  3 1 1 2 6  2 1 0 1 7  Hasilnya adalah : 7 |

1. No.27

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| Jika program di atas diberi masukan ‘s4yA-BuK4N+oRanG aLaY!?’, maka keluarannya adalah …? |
| base := ‘QWERTYUIOPLKJHGFDSAZXCVBNM’;  kata := ‘’;  readln(kalimat);  for i:= length(kalimat) downto 1 do  begin  if pos(kalimat[i], base) > 0 then  kata:= kata & kalimat[i];  end;  writeln(kata); |
| Kode Program Dimodifikasi : *(Hasil Modifikasi Diwarnai)* |
| var  base,kata,kalimat : string;  i : integer;  begin  base := 'QWERTYUIOPLKJHGFDSAZXCVBNM';  kata := '';  kalimat:='s4yA-BuK4N+oRanG aLaY!?';  for i:= length(kalimat) downto 1 do  begin  if pos(kalimat[i], base) > 0 then  begin  writeln(kalimat[i]);  kata:= kata + kalimat[i];  end;  end;  writeln(kata);  readln;  end. |
| Output Dari Kode Program Yang Dimodifikasi : |
| Y  L  G  R  N  K  B  A  YLGRNKBA. |

1. No.28

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| Berapa kalikah kibo(3) dipanggil saat pemanggilan kibo(7) ? {tuliskan angkanya} |
| function kibo(n: integer):integer;  begin  if (n = 2) or (n = 1) or (n = 0) then kibo := n  else kibo := kibo(n-1) + kibo(n-3);  end; |
| Kode Program Dimodifikasi : *(Hasil Modifikasi Diwarnai)* |
| uses crt;  function kibo(n: integer):integer;  begin  if (n = 2) or (n = 1) or (n = 0) then kibo := n  else kibo := kibo(n-1) + kibo(n-3);  end;  var  x : integer;  begin  readln(x);  writeln('hasil : ',kibo(x));  readln;  end. |
| Output Dari Kode Program Yang Dimodifikasi : |
| k(7) = k(6) + k(4)  k(5) + k(3) + k(3) + k(1)  k(4) + k(2) + k(2) + k(0) + k(2) + k(0)  k(3) + k(1)  k(2) + k(0)  jadi setiap perhitungan kibo hasilnya langsung di panggil kembali dan dihitung kibo(3) di panggil berapa kali yakni 3 kali |

1. No.29

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| Apakah keluaran dari program tersebut? |
| Var  we: longint;  Z: array[1..15] of longint = (64, 19, 56, 67, 66, 82,31, 20, 67, 10, 94, 100, 57, 14, 86);  function f(x: longint; y: longint): longint;  var  a, b: longint;  begin  if (x = y) then  f := Z[y]  else  begin  a := f(x, (x+y) div 2);  b := f((x+y) div 2+1, y);  if (a < b) then f := a  else f := b  end  end;  begin  we := f(3,11);  writeln(we);  end. |
| Kode Program Dimodifikasi : *(Hasil Modifikasi Diwarnai)* |
| uses crt;  var  we: longint;  Z: array[1..15] of longint ;  function f(x: longint; y: longint): longint;  var  a, b: longint;  begin  z[1]:=64;  z[2]:=19;  z[3]:=56;  z[4]:=67;  z[5]:=66;  z[6]:=82;  z[7]:=31;  z[8]:=20;  z[9]:=67;  z[10]:=10;  z[11]:=94;  z[12]:=100;  z[13]:=57;  z[14]:=14;  z[15]:=86;  if (x = y) then  f := Z[y]  else begin  a := f(x, (x+y) div 2);  b := f((x+y) div 2+1, y);  if (a < b) then f := a  else f := b  end  end;  begin  we := f(3,11);  writeln(we);  readln;  end. |
| Output Dari Kode Program Yang Dimodifikasi : |
| 1. f(3,11),  Karena gak sama, di div jadi  a=f(3,7)  b=f(8,11)  Pecahnya ini pakai rumus dibawah  a := f(3, (14) div 2);  b := f((14) div 2+1, 11);  if (a < b) then f := a  else f := b  2. f(3,7) sendiri juga dipecah, jadinya  a=f(3,5)  b=f(6,7)  3. f(3,5) ini juga harus dipecah jadi  a=f(3,4)  b=f(5,5)  4. f(3,4) juga harus dipecah lagi jadi  a=f(3,3)  b=f(4,4)  kan udah sama angkanya itu,  Jadinya  a=f(3,3)=z[3]=56  b=f(4,4)=z[4]=67  nilai 56 sama 67 nya itu diliat di var  karena a<b, maka didapat nilai  f(3,4)=56  5. Kembali ke langkah 3, maka didapat  a=f(3,4)=56  b=f(5,5)=z[5]=66  karena a<b juga, maka  f(3,5)=56  Lakukan proses itu sampai didapat we = 10 |

1. No.30

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| Apakah yang akan tercetak dari hasil pemanggilan perintah writeln(cl,',',cr)? |
| Var  s:string;  cl,cr:integer;  procedure right(l, r : integer);  forward;  procedure swap(l, r : integer);  var  c : char;  begin  if (l>=1) and (r<=length(s)) then  begin  c:=s[l];  s[l]:=s[r];  s[r]:=c;  end;  end;  procedure left(l, r : integer);  begin  inc(cl);  swap(l,r);  if (r<length(s)) then  procedure left(l, r : integer);  begin  inc(cl);  swap(l,r);  if (r<length(s)) then  right(l,r+1);  end;  procedure right(l, r : integer);  begin  inc(cr);  swap(l,r);  if (l>1) then  left(l-1,r);  end;  begin  s:='gogetgold';  left(9,1);  writeln(s);  writeln(cl,',',cr);  end. |
| Kode Program Dimodifikasi : *(Hasil Modifikasi Diwarnai)* |
| uses crt;  var  s:string;  cl,cr:integer;  procedure right(l, r : integer);  forward;  procedure swap(l, r : integer);  var  c : char;  begin  if (l>=1) and (r<=length(s)) then  begin  c:=s[l];  s[l]:=s[r];  s[r]:=c;  writeln(s);  end;  end;  procedure left(l, r : integer);  begin  inc(cl);  swap(l,r);  if (r<length(s)) then  right(l,r+1);  end;  procedure right(l, r : integer);  begin  inc(cr);  swap(l,r);  if (l>1) then  left(l-1,r);  end;  begin  s:='gogetgold';  left(9,1);  writeln(s);  writeln(cl,',',cr);  readkey;  end. |
| Output Dari Kode Program Yang Dimodifikasi : |
| Output Program.  dogetgolg  dggetgolo  dlgetgogo  dlgetgogo  dloetgggo  dlogtgego  dlogtgego  dloggtego  dloggtego  dlogtgego  dlogtgego  dloetgggo  dlgetgogo  dlgetgogo  dggetgolo  dogetgolg  gogetgold  gogetgold  9,8 |

1. No.31

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| Jika perintah left(9,1) diganti dengan left(5,5), apakah yang akan tercetak dari hasil pemanggilan perintah writeln(s)? |
| Var  s:string;  cl,cr:integer;  procedure right(l, r : integer);  forward;  procedure swap(l, r : integer);  var  c : char;  begin  if (l>=1) and (r<=length(s)) then  begin  c:=s[l];  s[l]:=s[r];  s[r]:=c;  end;  end;  procedure left(l, r : integer);  begin  inc(cl);  swap(l,r);  if (r<length(s)) then  procedure left(l, r : integer);  begin  inc(cl);  swap(l,r);  if (r<length(s)) then  right(l,r+1);  end;  procedure right(l, r : integer);  begin  inc(cr);  swap(l,r);  if (l>1) then  left(l-1,r);  end;  begin  s:='gogetgold';  left(9,1);  writeln(s);  writeln(cl,',',cr);  end. |
| Kode Program Dimodifikasi : *(Hasil Modifikasi Diwarnai)* |
| uses crt;  var  s:string;  cl,cr:integer;  procedure right(l, r : integer);  forward;  procedure swap(l, r : integer);  var  c : char;  begin  if (l>=1) and (r<=length(s)) then  begin  c:=s[l];  s[l]:=s[r];  s[r]:=c;  writeln(s);  end;  end;  procedure left(l, r : integer);  begin  inc(cl);  swap(l,r);  if (r<length(s)) then  right(l,r+1);  end;  procedure right(l, r : integer);  begin  inc(cr);  swap(l,r);  if (l>1) then  left(l-1,r);  end;  begin  s:='gogetgold';  left(5,5);  writeln(s);  writeln(cl,',',cr);  readkey;  end. |
| Output Dari Kode Program Yang Dimodifikasi : |
| gogetgold  gogegtold  gogtgeold  gogogetld  gotogegld  gologegtd  gtlogegod  gdlogegot  tdlogegog  tdlogegog  5,4 |

1. No 32

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| Bila kita memanggil prosedur tulis(30,30), berapakah jumlah ‘\*’ yang tertulis? { |
| procedure tulis(n,m:integer);  var  i,j,k:integer;  begin  for i:=1 to n do  begin  for j:=1 to (n div m) do  for k:=1 to m do  writeln('\*');  for j:=1 to (n mod m) do  writeln('-');  end;  end; |
| Kode Program Dimodifikasi : *(Hasil Modifikasi Diwarnai)* |
| Uses wincrt;  procedure tulis(n,m:integer);  var  i,j,k:integer;  begin  for i:=1 to n do  begin  for j:=1 to (n div m) do  for k:=1 to m do  writeln('i = ',i,’\*’,' j = ',j,’\*’,' k = ',k,'\*');  for j:=1 to (n mod m) do  writeln('-');  end;  end;  var  P,L: integer;  begin  P:=30;  L:=30;  tulis(P,L);  readkey;  end. |
| Output Dari Kode Program Yang Dimodifikasi : |
| I J K  i = 1 \* j = 1 \* k = 1 \*  i = 1 \* j = 1 \* k = 2 \*  i = 1 \* j = 1 \* k = 3 \*  i = 1 \* j = 1 \* k = 4 \*  i = 1 \* j = 1 \* k = 5 \*  i = 1 \* j = 1 \* k = 6 \*  i = 1 \* j = 1 \* k = 7 \*  i = 1 \* j = 1 \* k = 8 \*  i = 1 \* j = 1 \* k = 9 \*  i = 1 \* j = 1 \* k = 10 \*  i = 1 \* j = 1 \* k = 11 \*  i = 1 \* j = 1 \* k = 12 \*  i = 1 \* j = 1 \* k = 13 \*  i = 1 \* j = 1 \* k = 14 \*  i = 1 \* j = 1 \* k = 15 \*  i = 1 \* j = 1 \* k = 16 \*  i = 1 \* j = 1 \* k = 17 \*  i = 1 \* j = 1 \* k = 18 \*  i = 1 \* j = 1 \* k = 19 \*  i = 1 \* j = 1 \* k = 20 \*  i = 1 \* j = 1 \* k = 21 \*  i = 1 \* j = 1 \* k = 22 \*  i = 1 \* j = 1 \* k = 23 \*  i = 1 \* j = 1 \* k = 24 \*  i = 1 \* j = 1 \* k = 25 \*  i = 1 \* j = 1 \* k = 26 \*  i = 1 \* j = 1 \* k = 27 \*  i = 1 \* j = 1 \* k = 28 \*  i = 1 \* j = 1 \* k = 29 \*  i = 1 \* j = 1 \* k = 30 \*  i = 2 \* j = 1 \* k = 1 \*  i = 2 \* j = 1 \* k = 2 \*  i = 2 \* j = 1 \* k = 3 \*  i = 2 \* j = 1 \* k = 4 \*  i = 2 \* j = 1 \* k = 5 \*  i = 2 \* j = 1 \* k = 6 \*  i = 2 \* j = 1 \* k = 7 \*  i = 2 \* j = 1 \* k = 8 \*  i = 2 \* j = 1 \* k = 9 \*  i = 2 \* j = 1 \* k = 10 \*  i = 2 \* j = 1 \* k = 11 \*  i = 2 \* j = 1 \* k = 12 \*  i = 2 \* j = 1 \* k = 13 \*  i = 2 \* j = 1 \* k = 14 \*  i = 2 \* j = 1 \* k = 15 \*  i = 2 \* j = 1 \* k = 16 \*  i = 2 \* j = 1 \* k = 17 \*  i = 2 \* j = 1 \* k = 18 \*  i = 2 \* j = 1 \* k = 19 \*  i = 2 \* j = 1 \* k = 20 \*  i = 2 \* j = 1 \* k = 21 \*  i = 2 \* j = 1 \* k = 22 \*  i = 2 \* j = 1 \* k = 23 \*  i = 2 \* j = 1 \* k = 24 \*  i = 2 \* j = 1 \* k = 25 \*  i = 2 \* j = 1 \* k = 26 \*  i = 2 \* j = 1 \* k = 27 \*  i = 2 \* j = 1 \* k = 28 \*  i = 2 \* j = 1 \* k = 29 \*  i = 2 \* j = 1 \* k = 30 \*  i = 3 \* j = 1 \* k = 1 \*  i = 3 \* j = 1 \* k = 2 \*  i = 3 \* j = 1 \* k = 3 \*  i = 3 \* j = 1 \* k = 4 \*  i = 3 \* j = 1 \* k = 5 \*  i = 3 \* j = 1 \* k = 6 \*  i = 3 \* j = 1 \* k = 7 \*  i = 3 \* j = 1 \* k = 8 \*  i = 3 \* j = 1 \* k = 9 \*  i = 3 \* j = 1 \* k = 10 \*  i = 3 \* j = 1 \* k = 11 \*  i = 3 \* j = 1 \* k = 12 \*  i = 3 \* j = 1 \* k = 13 \*  i = 3 \* j = 1 \* k = 14 \*  i = 3 \* j = 1 \* k = 15 \*  i = 3 \* j = 1 \* k = 16 \*  i = 3 \* j = 1 \* k = 17 \*  i = 3 \* j = 1 \* k = 18 \*  i = 3 \* j = 1 \* k = 19 \*  i = 3 \* j = 1 \* k = 20 \*  i = 3 \* j = 1 \* k = 21 \*  i = 3 \* j = 1 \* k = 22 \*  i = 3 \* j = 1 \* k = 23 \*  i = 3 \* j = 1 \* k = 24 \*  i = 3 \* j = 1 \* k = 25 \*  i = 3 \* j = 1 \* k = 26 \*  i = 3 \* j = 1 \* k = 27 \*  i = 3 \* j = 1 \* k = 28 \*  i = 3 \* j = 1 \* k = 29 \*  i = 3 \* j = 1 \* k = 30 \*  i = 4 \* j = 1 \* k = 1 \*  i = 4 \* j = 1 \* k = 2 \*  i = 4 \* j = 1 \* k = 3 \*  i = 4 \* j = 1 \* k = 4 \*  i = 4 \* j = 1 \* k = 5 \*  i = 4 \* j = 1 \* k = 6 \*  i = 4 \* j = 1 \* k = 7 \*  i = 4 \* j = 1 \* k = 8 \*  i = 4 \* j = 1 \* k = 9 \*  i = 4 \* j = 1 \* k = 10 \*  i = 4 \* j = 1 \* k = 11 \*  i = 4 \* j = 1 \* k = 12 \*  i = 4 \* j = 1 \* k = 13 \*  i = 4 \* j = 1 \* k = 14 \*  i = 4 \* j = 1 \* k = 15 \*  i = 4 \* j = 1 \* k = 16 \*  i = 4 \* j = 1 \* k = 17 \*  i = 4 \* j = 1 \* k = 18 \*  i = 4 \* j = 1 \* k = 19 \*  i = 4 \* j = 1 \* k = 20 \*  i = 4 \* j = 1 \* k = 21 \*  i = 4 \* j = 1 \* k = 22 \*  i = 4 \* j = 1 \* k = 23 \*  i = 4 \* j = 1 \* k = 24 \*  i = 4 \* j = 1 \* k = 25 \*  i = 4 \* j = 1 \* k = 26 \*  i = 4 \* j = 1 \* k = 27 \*  i = 4 \* j = 1 \* k = 28 \*  i = 4 \* j = 1 \* k = 29 \*  i = 4 \* j = 1 \* k = 30 \*  i = 5 \* j = 1 \* k = 1 \*  i = 5 \* j = 1 \* k = 2 \*  i = 5 \* j = 1 \* k = 3 \*  i = 5 \* j = 1 \* k = 4 \*  i = 5 \* j = 1 \* k = 5 \*  i = 5 \* j = 1 \* k = 6 \*  i = 5 \* j = 1 \* k = 7 \*  i = 5 \* j = 1 \* k = 8 \*  i = 5 \* j = 1 \* k = 9 \*  i = 5 \* j = 1 \* k = 10 \*  i = 5 \* j = 1 \* k = 11 \*  i = 5 \* j = 1 \* k = 12 \*  i = 5 \* j = 1 \* k = 13 \*  i = 5 \* j = 1 \* k = 14 \*  i = 5 \* j = 1 \* k = 15 \*  i = 5 \* j = 1 \* k = 16 \*  i = 5 \* j = 1 \* k = 17 \*  i = 5 \* j = 1 \* k = 18 \*  i = 5 \* j = 1 \* k = 19 \*  i = 5 \* j = 1 \* k = 20 \*  i = 5 \* j = 1 \* k = 21 \*  i = 5 \* j = 1 \* k = 22 \*  i = 5 \* j = 1 \* k = 23 \*  i = 5 \* j = 1 \* k = 24 \*  i = 5 \* j = 1 \* k = 25 \*  i = 5 \* j = 1 \* k = 26 \*  i = 5 \* j = 1 \* k = 27 \*  i = 5 \* j = 1 \* k = 28 \*  i = 5 \* j = 1 \* k = 29 \*  i = 5 \* j = 1 \* k = 30 \*  i = 6 \* j = 1 \* k = 1 \*  i = 6 \* j = 1 \* k = 2 \*  i = 6 \* j = 1 \* k = 3 \*  i = 6 \* j = 1 \* k = 4 \*  i = 6 \* j = 1 \* k = 5 \*  i = 6 \* j = 1 \* k = 6 \*  i = 6 \* j = 1 \* k = 7 \*  i = 6 \* j = 1 \* k = 8 \*  i = 6 \* j = 1 \* k = 9 \*  i = 6 \* j = 1 \* k = 10 \*  i = 6 \* j = 1 \* k = 11 \*  i = 6 \* j = 1 \* k = 12 \*  i = 6 \* j = 1 \* k = 13 \*  i = 6 \* j = 1 \* k = 14 \*  i = 6 \* j = 1 \* k = 15 \*  i = 6 \* j = 1 \* k = 16 \*  i = 6 \* j = 1 \* k = 17 \*  i = 6 \* j = 1 \* k = 18 \*  i = 6 \* j = 1 \* k = 19 \*  i = 6 \* j = 1 \* k = 20 \*  i = 6 \* j = 1 \* k = 21 \*  i = 6 \* j = 1 \* k = 22 \*  i = 6 \* j = 1 \* k = 23 \*  i = 6 \* j = 1 \* k = 24 \*  i = 6 \* j = 1 \* k = 25 \*  i = 6 \* j = 1 \* k = 26 \*  i = 6 \* j = 1 \* k = 27 \*  i = 6 \* j = 1 \* k = 28 \*  i = 6 \* j = 1 \* k = 29 \*  i = 6 \* j = 1 \* k = 30 \*  i = 7 \* j = 1 \* k = 1 \*  i = 7 \* j = 1 \* k = 2 \*  i = 7 \* j = 1 \* k = 3 \*  i = 7 \* j = 1 \* k = 4 \*  i = 7 \* j = 1 \* k = 5 \*  i = 7 \* j = 1 \* k = 6 \*  i = 7 \* j = 1 \* k = 7 \*  i = 7 \* j = 1 \* k = 8 \*  i = 7 \* j = 1 \* k = 9 \*  i = 7 \* j = 1 \* k = 10 \*  i = 7 \* j = 1 \* k = 11 \*  i = 7 \* j = 1 \* k = 12 \*  i = 7 \* j = 1 \* k = 13 \*  i = 7 \* j = 1 \* k = 14 \*  i = 7 \* j = 1 \* k = 15 \*  i = 7 \* j = 1 \* k = 16 \*  i = 7 \* j = 1 \* k = 17 \*  i = 7 \* j = 1 \* k = 18 \*  i = 7 \* j = 1 \* k = 19 \*  i = 7 \* j = 1 \* k = 20 \*  i = 7 \* j = 1 \* k = 21 \*  i = 7 \* j = 1 \* k = 22 \*  i = 7 \* j = 1 \* k = 23 \*  i = 7 \* j = 1 \* k = 24 \*  i = 7 \* j = 1 \* k = 25 \*  i = 7 \* j = 1 \* k = 26 \*  i = 7 \* j = 1 \* k = 27 \*  i = 7 \* j = 1 \* k = 28 \*  i = 7 \* j = 1 \* k = 29 \*  i = 7 \* j = 1 \* k = 30 \*  i = 8 \* j = 1 \* k = 1 \*  i = 8 \* j = 1 \* k = 2 \*  i = 8 \* j = 1 \* k = 3 \*  i = 8 \* j = 1 \* k = 4 \*  i = 8 \* j = 1 \* k = 5 \*  i = 8 \* j = 1 \* k = 6 \*  i = 8 \* j = 1 \* k = 7 \*  i = 8 \* j = 1 \* k = 8 \*  i = 8 \* j = 1 \* k = 9 \*  i = 8 \* j = 1 \* k = 10 \*  i = 8 \* j = 1 \* k = 11 \*  i = 8 \* j = 1 \* k = 12 \*  i = 8 \* j = 1 \* k = 13 \*  i = 8 \* j = 1 \* k = 14 \*  i = 8 \* j = 1 \* k = 15 \*  i = 8 \* j = 1 \* k = 16 \*  i = 8 \* j = 1 \* k = 17 \*  i = 8 \* j = 1 \* k = 18 \*  i = 8 \* j = 1 \* k = 19 \*  i = 8 \* j = 1 \* k = 20 \*  i = 8 \* j = 1 \* k = 21 \*  i = 8 \* j = 1 \* k = 22 \*  i = 8 \* j = 1 \* k = 23 \*  i = 8 \* j = 1 \* k = 24 \*  i = 8 \* j = 1 \* k = 25 \*  i = 8 \* j = 1 \* k = 26 \*  i = 8 \* j = 1 \* k = 27 \*  i = 8 \* j = 1 \* k = 28 \*  i = 8 \* j = 1 \* k = 29 \*  i = 8 \* j = 1 \* k = 30 \*  i = 9 \* j = 1 \* k = 1 \*  i = 9 \* j = 1 \* k = 2 \*  i = 9 \* j = 1 \* k = 3 \*  i = 9 \* j = 1 \* k = 4 \*  i = 9 \* j = 1 \* k = 5 \*  i = 9 \* j = 1 \* k = 6 \*  i = 9 \* j = 1 \* k = 7 \*  i = 9 \* j = 1 \* k = 8 \*  i = 9 \* j = 1 \* k = 9 \*  i = 9 \* j = 1 \* k = 10 \*  i = 9 \* j = 1 \* k = 11 \*  i = 9 \* j = 1 \* k = 12 \*  i = 9 \* j = 1 \* k = 13 \*  i = 9 \* j = 1 \* k = 14 \*  i = 9 \* j = 1 \* k = 15 \*  i = 9 \* j = 1 \* k = 16 \*  i = 9 \* j = 1 \* k = 17 \*  i = 9 \* j = 1 \* k = 18 \*  i = 9 \* j = 1 \* k = 19 \*  i = 9 \* j = 1 \* k = 20 \*  i = 9 \* j = 1 \* k = 21 \*  i = 9 \* j = 1 \* k = 22 \*  i = 9 \* j = 1 \* k = 23 \*  i = 9 \* j = 1 \* k = 24 \*  i = 9 \* j = 1 \* k = 25 \*  i = 9 \* j = 1 \* k = 26 \*  i = 9 \* j = 1 \* k = 27 \*  i = 9 \* j = 1 \* k = 28 \*  i = 9 \* j = 1 \* k = 29 \*  i = 9 \* j = 1 \* k = 30 \*  i = 10 \* j = 1 \* k = 1 \*  i = 10 \* j = 1 \* k = 2 \*  i = 10 \* j = 1 \* k = 3 \*  i = 10 \* j = 1 \* k = 4 \*  i = 10 \* j = 1 \* k = 5 \*  i = 10 \* j = 1 \* k = 6 \*  i = 10 \* j = 1 \* k = 7 \*  i = 10 \* j = 1 \* k = 8 \*  i = 10 \* j = 1 \* k = 9 \*  i = 10 \* j = 1 \* k = 10 \*  i = 10 \* j = 1 \* k = 11 \*  i = 10 \* j = 1 \* k = 12 \*  i = 10 \* j = 1 \* k = 13 \*  i = 10 \* j = 1 \* k = 14 \*  i = 10 \* j = 1 \* k = 15 \*  i = 10 \* j = 1 \* k = 16 \*  i = 10 \* j = 1 \* k = 17 \*  i = 10 \* j = 1 \* k = 18 \*  i = 10 \* j = 1 \* k = 19 \*  i = 10 \* j = 1 \* k = 20 \*  i = 10 \* j = 1 \* k = 21 \*  i = 10 \* j = 1 \* k = 22 \*  i = 10 \* j = 1 \* k = 23 \*  i = 10 \* j = 1 \* k = 24 \*  i = 10 \* j = 1 \* k = 25 \*  i = 10 \* j = 1 \* k = 26 \*  i = 10 \* j = 1 \* k = 27 \*  i = 10 \* j = 1 \* k = 28 \*  i = 10 \* j = 1 \* k = 29 \*  i = 10 \* j = 1 \* k = 30 \*  i = 11 \* j = 1 \* k = 1 \*  i = 11 \* j = 1 \* k = 2 \*  i = 11 \* j = 1 \* k = 3 \*  i = 11 \* j = 1 \* k = 4 \*  i = 11 \* j = 1 \* k = 5 \*  i = 11 \* j = 1 \* k = 6 \*  i = 11 \* j = 1 \* k = 7 \*  i = 11 \* j = 1 \* k = 8 \*  i = 11 \* j = 1 \* k = 9 \*  i = 11 \* j = 1 \* k = 10 \*  i = 11 \* j = 1 \* k = 11 \*  i = 11 \* j = 1 \* k = 12 \*  i 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1 \* k = 4 \*  i = 27 \* j = 1 \* k = 5 \*  i = 27 \* j = 1 \* k = 6 \*  i = 27 \* j = 1 \* k = 7 \*  i = 27 \* j = 1 \* k = 8 \*  i = 27 \* j = 1 \* k = 9 \*  i = 27 \* j = 1 \* k = 10 \*  i = 27 \* j = 1 \* k = 11 \*  i = 27 \* j = 1 \* k = 12 \*  i = 27 \* j = 1 \* k = 13 \*  i = 27 \* j = 1 \* k = 14 \*  i = 27 \* j = 1 \* k = 15 \*  i = 27 \* j = 1 \* k = 16 \*  i = 27 \* j = 1 \* k = 17 \*  i = 27 \* j = 1 \* k = 18 \*  i = 27 \* j = 1 \* k = 19 \*  i = 27 \* j = 1 \* k = 20 \*  i = 27 \* j = 1 \* k = 21 \*  i = 27 \* j = 1 \* k = 22 \*  i = 27 \* j = 1 \* k = 23 \*  i = 27 \* j = 1 \* k = 24 \*  i = 27 \* j = 1 \* k = 25 \*  i = 27 \* j = 1 \* k = 26 \*  i = 27 \* j = 1 \* k = 27 \*  i = 27 \* j = 1 \* k = 28 \*  i = 27 \* j = 1 \* k = 29 \*  i = 27 \* j = 1 \* k = 30 \*  i = 28 \* j = 1 \* k = 1 \*  i = 28 \* j = 1 \* k = 2 \*  i = 28 \* j = 1 \* k = 3 \*  i = 28 \* j = 1 \* k = 4 \*  i = 28 \* j = 1 \* k = 5 \*  i = 28 \* j = 1 \* k = 6 \*  i = 28 \* j = 1 \* k = 7 \*  i = 28 \* j = 1 \* k = 8 \*  i = 28 \* j = 1 \* k = 9 \*  i = 28 \* j = 1 \* k = 10 \*  i = 28 \* j = 1 \* k = 11 \*  i = 28 \* j = 1 \* k = 12 \*  i = 28 \* j = 1 \* k = 13 \*  i = 28 \* j = 1 \* k = 14 \*  i = 28 \* j = 1 \* k = 15 \*  i = 28 \* j = 1 \* k = 16 \*  i = 28 \* j = 1 \* k = 17 \*  i = 28 \* j = 1 \* k = 18 \*  i = 28 \* j = 1 \* k = 19 \*  i = 28 \* j = 1 \* k = 20 \*  i = 28 \* j = 1 \* k = 21 \*  i = 28 \* j = 1 \* k = 22 \*  i = 28 \* j = 1 \* k = 23 \*  i = 28 \* j = 1 \* k = 24 \*  i = 28 \* j = 1 \* k = 25 \*  i = 28 \* j = 1 \* k = 26 \*  i = 28 \* j = 1 \* k = 27 \*  i = 28 \* j = 1 \* k = 28 \*  i = 28 \* j = 1 \* k = 29 \*  i = 28 \* j = 1 \* k = 30 \*  i = 29 \* j = 1 \* k = 1 \*  i = 29 \* j = 1 \* k = 2 \*  i = 29 \* j = 1 \* k = 3 \*  i = 29 \* j = 1 \* k = 4 \*  i = 29 \* j = 1 \* k = 5 \*  i = 29 \* j = 1 \* k = 6 \*  i = 29 \* j = 1 \* k = 7 \*  i = 29 \* j = 1 \* k = 8 \*  i = 29 \* j = 1 \* k = 9 \*  i = 29 \* j = 1 \* k = 10 \*  i = 29 \* j = 1 \* k = 11 \*  i = 29 \* j = 1 \* k = 12 \*  i = 29 \* j = 1 \* k = 13 \*  i = 29 \* j = 1 \* k = 14 \*  i = 29 \* j = 1 \* k = 15 \*  i = 29 \* j = 1 \* k = 16 \*  i = 29 \* j = 1 \* k = 17 \*  i = 29 \* j = 1 \* k = 18 \*  i = 29 \* j = 1 \* k = 19 \*  i = 29 \* j = 1 \* k = 20 \*  i = 29 \* j = 1 \* k = 21 \*  i = 29 \* j = 1 \* k = 22 \*  i = 29 \* j = 1 \* k = 23 \*  i = 29 \* j = 1 \* k = 24 \*  i = 29 \* j = 1 \* k = 25 \*  i = 29 \* j = 1 \* k = 26 \*  i = 29 \* j = 1 \* k = 27 \*  i = 29 \* j = 1 \* k = 28 \*  i = 29 \* j = 1 \* k = 29 \*  i = 29 \* j = 1 \* k = 30 \*  i = 30 \* j = 1 \* k = 1 \*  i = 30 \* j = 1 \* k = 2 \*  i = 30 \* j = 1 \* k = 3 \*  i = 30 \* j = 1 \* k = 4 \*  i = 30 \* j = 1 \* k = 5 \*  i = 30 \* j = 1 \* k = 6 \*  i = 30 \* j = 1 \* k = 7 \*  i = 30 \* j = 1 \* k = 8 \*  i = 30 \* j = 1 \* k = 9 \*  i = 30 \* j = 1 \* k = 10 \*  i = 30 \* j = 1 \* k = 11 \*  i = 30 \* j = 1 \* k = 12 \*  i = 30 \* j = 1 \* k = 13 \*  i = 30 \* j = 1 \* k = 14 \*  i = 30 \* j = 1 \* k = 15 \*  i = 30 \* j = 1 \* k = 16 \*  i = 30 \* j = 1 \* k = 17 \*  i = 30 \* j = 1 \* k = 18 \*  i = 30 \* j = 1 \* k = 19 \*  i = 30 \* j = 1 \* k = 20 \*  i = 30 \* j = 1 \* k = 21 \*  i = 30 \* j = 1 \* k = 22 \*  i = 30 \* j = 1 \* k = 23 \*  i = 30 \* j = 1 \* k = 24 \*  i = 30 \* j = 1 \* k = 25 \*  i = 30 \* j = 1 \* k = 26 \*  i = 30 \* j = 1 \* k = 27 \*  i = 30 \* j = 1 \* k = 28 \*  i = 30 \* j = 1 \* k = 29 \*  i = 30 \* j = 1 \* k = 30 \* |

1. No.33

|  |
| --- |
| Bila kita memanggil prosedur tulis(30,30), berapakah jumlah ‘\*’ yang tertulis? |
| procedure tulis(n,m:integer);  var  i,j,k:integer;  begin  for i:=1 to n do  begin  for j:=1 to (n div m) do  for k:=1 to m do  writeln('\*');  for j:=1 to (n mod m) do  writeln('-');  end;  end; |
| Kode Program Dimodifikasi : *(Hasil Modifikasi Diwarnai)* |
| var  x,y: integer;  procedure tulis(n,m:integer);  var  i,j,k:integer;  begin  for i:=1 to n do  begin  for j:=1 to (n div m) do  for k:=1 to m do  writeln('\*');  for j:=1 to (n mod m) do  writeln('-');  end;  end;  begin  readln(x);  readln(y);  tulis(x,y);  readln;  end. |
| Output Dari Kode Program Yang Dimodifikasi : |
| n div m = \left \lfloor \frac{n}{m} \right \rfloor  Banyak pencetakan simbol-simbol: n(\left \lfloor \frac{n}{m} \right \rfloor m + (n\;mod\;m))  Perhatikan bahwa  \left \lfloor \frac{n}{m} \right \rfloor = \frac{n - (n\;mod\;m)}{m}  Maka didapat:  n(\frac{n - (n\;mod\;m)}{m}m + n\;mod\;m))  n((n - (n\;mod\;m)) + n\;mod\;m))  n(n) |

1. No.34

|  |
| --- |
| Berapakah output dari program di atas? |
| var  T:array[1..13] of integer = (32, 6, 12, 64, 68, 100,  214, 120, 30, 80, 24, 22, 88);  function q(c,d:integer):integer;  var  e:integer;  begin  if (d=0) then q:=c else  begin  e:=c mod d;  q:=q(d,e);  end;  end;  function p(a,b:integer):integer;  var  i:integer;  begin  p:=T[a];  for i:=a to b do  begin  p:=q(p,T[i]);  end  end;  begin  writeln(p(1,13));  end. |
| Kode Program Dimodifikasi : *(Hasil Modifikasi Diwarnai)* |
| uses crt;  var  T:array[1..13] of integer ;  function q(c,d:integer):integer;  var  e:integer;  begin  T[1]:=32;  T[2]:=6;  T[3]:=12;  T[4]:=64;  T[5]:=68;  T[6]:=100;  T[7]:=214;  T[8]:=120;  T[9]:=30;  T[10]:=80;  T[11]:=24;  T[12]:=22;  T[13]:=88;  if (d=0) then q:=c  else  begin  e:=c mod d;  q:=q(d,e);  end;  end;  function p(a,b:integer):integer;  var  i:integer;  begin  p:=T[a];  for i:=a to b do  begin  p:=q(p,T[i]);  end  end;  begin  writeln('hasil : ',p(1,13));  readln;  end. |
| Output Dari Kode Program Yang Dimodifikasi : |
| p:=T[1]; = 32  for i:=a to b do  1 2 3 4 5 6 7 8 9 10 11 12 13  begin  p:=q(p,T[2]);  p:=q(32,6);  fungsi q dipanggil  else karena d=6  e:=32 mod 6;  q:=q(6,2);  fungsi q dipanggil c=6,d=2  else karena d =2  e:=6 mod 2;  q:=q(2,0)  fungsi q dipanggil c=2, d=0  d=0 maka q = 2 karena q:=c  balik lagi ke perulangan i ke 3  p:=T[2]; = 6  begin p:=q(6,12)  fungsi q dipanggil c=6,d=12  else karena d=12  e:=6 mod 12;  q:=q(12,6);  fungsi q dipanggil c=12, d=6  else karena d=6  e:= 12 mod 6;  q:=q(6,0)  fungsi q dipanggil c=6, d=0  d=0 maka q = 6 karena q:=c  balik ke perulangan i ke 4  p:=T[3]; = 12  begin p:=q(12,64)  fungsi q dipanggil c=12,d=64  else karena d=64  e:=12 mod 64;  q:=q(64,12);  fungsi q dipanggil c=64, d=12  else karena d=12  e:= 64 mod 12;  q:=q(12,4)  fungsi q dipanggil c=12, d=4  else karena d=4  e:= 12 mod 4;  q:=q(4,0)  fungsi q dipanggil c=4, d=0  d=0 maka q = 4 karena q:=c  balik ke perulangan i ke 5  p:=T[4]; = 64  begin p:=q(64,68)  fungsi q dipanggil c=64,d=68  else karena d=68  e:=64 mod 68;  q:=q(68,64);  fungsi q dipanggil c=68, d=64  else karena d=64  e:= 68 mod 64;  q:=q(64,4)  fungsi q dipanggil c=64, d=4  else karena d=4  e:= 64 mod 4;  q:=q(4,0)  fungsi q dipanggil c=4, d=0  d=0 maka q = 4 karena q:=c  balik ke perulangan i ke 6  p:=T[5]; = 68  begin p:=q(68,100)  fungsi q dipanggil c=68,d=100  else karena d=100  e:=68 mod 100;  q:=q(100,68);  fungsi q dipanggil c=100, d=68  else karena d=68  e:= 100 mod 68;  q:=q(68,32)  fungsi q dipanggil c=68, d=32  else karena d=32  e:= 68 mod 32;  q:=q(32,4)  fungsi q dipanggil c=32, d=4  else karena d=4  e:= 32 mod 4;  q:=q(4,0)  fungsi q dipanggil c=4, d=0  d=0 maka q = 4 karena q:=c  balik ke perulangan i ke 7  p:=T[6]; = 100  begin p:=q(100,214)  fungsi q dipanggil c=100,d=214  else karena d=214  e:=100 mod 214;  q:=q(214,100);  fungsi q dipanggil c=214, d=100  else karena d=100  e:= 214 mod 100;  q:=q(100,14)  fungsi q dipanggil c=100, d=14  else karena d=14  e:= 100 mod 14;  q:=q(14,2)  fungsi q dipanggil c=14, d=2  else karena d=2  e:= 14 mod 2;  q:=q(2,0)  fungsi q dipanggil c=2, d=0  d=0 maka q = 2 karena q:=c  balik ke perulangan i ke 8  p:=T[7]; = 214  begin p:=q(214,120)  fungsi q dipanggil c=214,d=120  else karena d=120  e:=214 mod 120;  q:=q(120,94);  fungsi q dipanggil c=120, d=94  else karena d=94  e:= 120 mod 94;  q:=q(94,26)  fungsi q dipanggil c=94, d=26  else karena d=26  e:= 94 mod 26;  q:=q(26,16)  fungsi q dipanggil c=26, d=16  else karena d=16  e:= 26 mod 16;  q:=q(16,10)  fungsi q dipanggil c=16, d=10  else karena d=10  e:= 16 mod 10;  q:=q(10,6)  fungsi q dipanggil c=10, d=6  else karena d=6  e:= 10 mod 6;  q:=q(6,4)  fungsi q dipanggil c=6, d=4  else karena d=4  e:= 6 mod 4;  q:=q(4,2)  fungsi q dipanggil c=4, d=2  else karena d=2  e:= 4 mod 2;  q:=q(2,0)  fungsi q dipanggil c=2, d=0  d=0 maka q = 2 karena q:=c  balik ke perulangan i ke 8  p:=T[7]; = 214  begin p:=q(214,120)  fungsi q dipanggil c=214,d=120  else karena d=120  e:=214 mod 120;  q:=q(120,94);  fungsi q dipanggil c=120, d=94  else karena d=94  e:= 120 mod 94;  q:=q(94,26)  fungsi q dipanggil c=94, d=26  else karena d=26  e:= 94 mod 26;  q:=q(26,16)  fungsi q dipanggil c=26, d=16  else karena d=16  e:= 26 mod 16;  q:=q(16,10)  fungsi q dipanggil c=16, d=10  else karena d=10  e:= 16 mod 10;  q:=q(10,6)  fungsi q dipanggil c=10, d=6  else karena d=6  e:= 10 mod 6;  q:=q(6,4)  fungsi q dipanggil c=6, d=4  else karena d=4  e:= 6 mod 4;  q:=q(4,2)  fungsi q dipanggil c=4, d=2  else karena d=2  e:= 4 mod 2;  q:=q(2,0)  fungsi q dipanggil c=2, d=0  d=0 maka q = 2 karena q:=c  balik ke perulangan i ke 9  p:=T[8]; = 120  begin p:=q(120,30)  fungsi q dipanggil c=120,d=30  else karena d=30  e:=120 mod 30;  q:=q(30,0);  fungsi q dipanggil c=30, d=0  d=0 maka q = 30 karena q:=c  balik ke perulangan i ke 10  p:=T[9]; = 30  begin p:=q(30,80)  fungsi q dipanggil c=30,d=80  else karena d=80  e:=30 mod 80;  q:=q(80,30);  fungsi q dipanggil c=80, d=30  else karena d=30  e:= 80 mod 30;  q:=q(30,20)  fungsi q dipanggil c=30, d=20  else karena d=20  e:= 30 mod 20;  q:=q(20,10)  fungsi q dipanggil c=20, d=10  else karena d=10  e:= 20 mod 10;  q:=q(10,0)  fungsi q dipanggil c=10, d=0  d=0 maka q = 10 karena q:=c  balik ke perulangan i ke 11  p:=T[10]; = 80  begin p:=q(80,24)  fungsi q dipanggil c=80,d=24  else karena d=24  e:=80 mod 24;  q:=q(24,8);  fungsi q dipanggil c=24, d=8  else karena d=8  e:= 24 mod 8;  q:=q(8,0)  fungsi q dipanggil c=8, d=0  d=0 maka q = 8 karena q:=c  balik ke perulangan i ke 12  p:=T[11]; = 24  begin p:=q(24,22)  fungsi q dipanggil c=24,d=22  else karena d=22  e:=24 mod 22;  q:=q(22,2);  fungsi q dipanggil c=22, d=2  else karena d=2  e:= 22 mod 2;  q:=q(2,0)  fungsi q dipanggil c=2, d=0  d=0 maka q = 2 karena q:=c  balik ke perulangan i ke 13  p:=T[12]; = 22  begin p:=q(22,88)  fungsi q dipanggil c=22,d=88  else karena d=88  e:=22 mod 88;  q:=q(88,22);  fungsi q dipanggil c=88, d=22  else karena d=22  e:= 88 mod 22;  q:=q(22,0)  fungsi q dipanggil c=22, d=0  d=0 maka q = 22 karena q:=c  perulangan i berhenti karena sudah berulang sebanyak 13 kali dan hasil akhirnya adalah 2 karena dari semua hasil pemanggilan dari i:= 1 to 13 do nilai q=2 lebih banyak |

1. No.35

|  |
| --- |
| Jika a[] adalah array berindex 0..9 dengan isi {1,-1,-2,-1,-1,1,-1,2,-1,3}, maka berapakah nilai tot di akhir program? |
| var  T:array[1..13] of integer = (32, 6, 12, 64, 68, 100,  214, 120, 30, 80, 24, 22, 88);  function q(c,d:integer):integer;  var  e:integer;  begin  if (d=0) then q:=c else  begin  e:=c mod d;  q:=q(d,e);  end;  end;  function p(a,b:integer):integer;  var  i:integer;  begin  p:=T[a];  for i:=a to b do  begin  p:=q(p,T[i]);  end  end;  begin  writeln(p(1,13));  end. |
| Kode Program Dimodifikasi : *(Hasil Modifikasi Diwarnai)* |
| uses crt;  var  T:array[0..9] of integer ;  function q(c,d:integer):integer;  var  e:integer;  begin  T[0]:=1;  T[1]:=-1;  T[2]:=-2;  T[3]:=-1;  T[4]:=-1;  T[5]:=1;  T[6]:=-1;  T[7]:=2;  T[8]:=-1;  T[9]:=3;  if (d=0) then q:=c  else  begin  e:=c mod d;  q:=q(d,e);  end;  end;  function p(a,b:integer):integer;  var  i:integer;  begin  p:=T[a];  for i:=a to b do  begin  p:=q(p,T[i]);  end  end;  begin  writeln('hasil : ',p(1,13));  readln;  end. |
| Output Dari Kode Program Yang Dimodifikasi : |
| array berindex 0..9 dengan isi {1,-1,-2,-1,-1,1,-1,2,-1,3},  p:=T[1]; = -1  for i:=a to b do  1 2 3 4 5 6 7 8 9 10 11 12 13  begin  p:=q(p,T[2]);  p:=q(-1,-2);  fungsi q dipanggil c=-1, d=-2  else karena d=-2  e:=-1 mod -2;  q:=q(-2,1);  fungsi q dipanggil c=-2,d=1  else karena d=1  e:=-2 mod 1;  q:=q(1,0);  fungsi q dipanggil c=1,d=0  d=0 maka q = 1 karena q:=c  balik lagi ke perulangan i ke 3  p:=T[2]; = -2  begin  p:=q(p,T[3]);  p:=q(-2,-1);  fungsi q dipanggil c=-2, d=-1  else karena d=-1  e:=-2 mod -1;  q:=q(-1,0);  fungsi q dipanggil c=-1,d=0  d=0 maka q = -1 karena q:=c  balik ke perulangan i ke 4  p:=T[3]; = -1  begin  p:=q(p,T[4]);  p:=q(-1,-1);  fungsi q dipanggil c=-1, d=-1  else karena d=-1  e:=-1 mod -1;  q:=q(-1,0);  fungsi q dipanggil c=-1,d=0  d=0 maka q = -1 karena q:=c  balik ke perulangan i ke 5  p:=T[4]; = -1  begin  p:=q(p,T[5]);  p:=q(-1,1);  fungsi q dipanggil c=-1, d=1  else karena d=1  e:=-1 mod 1;  q:=q(-1,0);  fungsi q dipanggil c=-1,d=0  d=0 maka q = -1 karena q:=c  balik ke perulangan i ke 6  p:=T[5]; = 1  begin  p:=q(p,T[6]);  p:=q(1,-1);  fungsi q dipanggil c=1, d=-1  else karena d=-1  e:=1 mod -1;  q:=q(-1,0);  fungsi q dipanggil c=1,d=0  d=0 maka q = 1 karena q:=c  balik ke perulangan i ke 7  p:=T[6]; = -1  begin  p:=q(p,T[7]);  p:=q(-1,2);  fungsi q dipanggil c=-1, d=2  else karena d=2  e:=-1 mod 2;  q:=q(-1,1);  fungsi q dipanggil c=-1,d=1  else karena d=1  e:=-1 mod 1;  q:=q(1,0);  fungsi q dipanggil c=-1,d=0  d=0 maka q = 1 karena q:=c  balik ke perulangan i ke 8  p:=T[7]; = 2  begin  p:=q(p,T[8]);  p:=q(2,-1);  fungsi q dipanggil c=2, d=-1  else karena d=-1  e:=2 mod -1;  q:=q(-1,0);  fungsi q dipanggil c=-1,d=0  d=0 maka q = 1 karena q:=c  balik ke perulangan i ke 8  p:=T[8]; = -1  begin  p:=q(p,T[9]);  p:=q(-1,3);  fungsi q dipanggil c=-1, d=3  else karena d=3  e:=-1 mod 3;  q:=q(-1,-1);  fungsi q dipanggil c=-1,d=-1  else karena d=-1  e:=-1 mod -1;  q:=q(-1,0);  fungsi q dipanggil c=-1,d=0  d=0 maka q = -1 karena q:=c  perulangan i berhenti karena sudah berulang sebanyak 13 kali dan hasil akhirnya adalah -1 karena dari semua hasil pemanggilan dari i:= 1 to 13 do nilai akhir q=-1 lebih banyak |

1. No. 36

|  |
| --- |
| Apakah output dari pemanggilan writeln(hop(18, 3, 1993)) ? |
| function hap(x,t: integer): integer;  begin  if t = 1 then  hap := x mod 5  else  hap := 5\*x;  end;  function hip(x,y: integer): integer;  begin  if x < y then  hip := hip(y,x)  else  hip := hap(x,1) + hap(y,2);  end;  function hop(x,y,z: integer): integer;  begin  if y > z then  hop := hop(x,z,y)  else if x > y then  hop := hop(y,x,z)  else  hop := hip(x,y) + z;  end; |
| Kode Program Dimodifikasi : *(Hasil Modifikasi Diwarnai)* |
| uses crt;  function hap(x,t: integer): integer;  begin  if t = 1 then  hap := x mod 5  else  hap := 5\*x;  end;  function hip(x,y: integer): integer;  begin  if x < y then  hip := hip(y,x)  else  hip := hap(x,1) + hap(y,2);  end;  function hop(x,y,z: integer): integer;  begin  if y > z then  hop := hop(x,z,y)  else if x > y then  hop := hop(y,x,z)  else  hop := hip(x,y) + z;  end;  begin  writeln(hop(18,3,1993));  readkey;  end. |
| Output Dari Kode Program Yang Dimodifikasi : |
| hop (18,3,1993)  hop = hip(18,3) + 1993  18 + 1993 = 2011  hip(3,18)  hip = hap(18,1) + hap(3,2) = 18  hap = 18 mod 5 = 3  hap = 15 |

1. No. 37

|  |
| --- |
| Apakah output dari pemanggilan writeln(hip(hop(201,320,12), hop(20,1120,10)) + hap(21,30)) ? |
| function hap(x,t: integer): integer;  begin  if t = 1 then  hap := x mod 5  else  hap := 5\*x;  end;  function hip(x,y: integer): integer;  begin  if x < y then  hip := hip(y,x)  else  hip := hap(x,1) + hap(y,2);  end;  function hop(x,y,z: integer): integer;  begin  if y > z then  hop := hop(x,z,y)  else if x > y then  hop := hop(y,x,z)  else  hop := hip(x,y) + z;  end; |
| Kode Program Dimodifikasi : *(Hasil Modifikasi Diwarnai)* |
| uses crt;  function hap(x,t: integer): integer;  begin  if t = 1 then  hap := x mod 5  else  hap := 5\*x;  end;  function hip(x,y: integer): integer;  begin  if x < y then  hip := hip(y,x)  else  hip := hap(x,1) + hap(y,2);  end;  function hop(x,y,z: integer): integer;  begin  if y > z then  hop := hop(x,z,y)  else if x > y then  hop := hop(y,x,z)  else  hop := hip(x,y) + z;  end;  begin  writeln(hop(18,3,1993));  readkey;  end. |
| Output Dari Kode Program Yang Dimodifikasi : |
| hop(201,320,12)  hop = hop(201,12,320)  hop = hop(12,201,320)  hop = hip(12,201) + 320  hip = hip(201,12) + 320  61 + 320 = 381  hip = hap(201,1) + hap(12,2) = 61  hap mod 5 = 1  hap = 5 \* 12 = 60  (hop(20,1120,10))  hop = hop(20,10,1120)  hop = hop(10,20,1120)  hop = hop(10,20) + 1120  hip = hip(20,10) + 1120  100 + 1120 = 1200  hip = hap(10,1) + hap(20,2) = 1200  hop = 10 mod 5 = 0  hap = 5 \* 20 = 100  hip(281,1240)  hip = hip(120,381)  hip = hap(1240,1) + hap(381,2) = 1905  hap = 1240 mod 5 = 0  hap = 5 \* 381 = 1905  hap(21,30)  hap = 5 \* 21 = 105  1905 + 105 = 2010. |

1. No.39

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| --- |
| Apabila diberi masukan n=7, maka berapakah banyaknya ‘\*’ yang dicetak pada layar? |
| for i:=1 to n do  begin  for k:=i to n-1 do write(' ');  for j:=1 to (2\*i-1) do  if (i=n) or (i mod 2=1) then write('\*')  else if j mod 2=1 then write('\*')  else write('0');  writeln;  end;  for l:=n downto 2 do  begin  for m:=l to n do write(' ');  for o:=(2\*l-1) downto 3 do  if o mod 2=1 then write('\*')  else write('0');  writeln;  end; |
| Kode Program Dimodifikasi : *(Hasil Modifikasi Diwarnai)* |
| var  i,k,j,n,m,l,o : integer;  begin  read(n);  for i:=1 to n do  begin  for k:=i to n-1 do write(' ');  for j:=1 to (2\*i-1) do  if (i=n) or (i mod 2=1) then write('\*')  else if j mod 2=1 then write('\*')  else write('0');  writeln;  end;  for l:=n downto 2 do  begin  for m:=l to n do write(' ');  for o:=(2\*l-1) downto 3 do  if o mod 2=1 then write('\*')  else write('0');  writeln;  readln;  end;  end. |
| Output Dari Kode Program Yang Dimodifikasi : |
| \*  \*0\*  \*\*\*\*\*  \*0\*0\*0\*  \*\*\*\*\*\*\*\*\*  \*0\*0\*0\*0\*0\*  \*\*\*\*\*\*\*\*\*\*\*\*\*  \*0\*0\*0\*0\*0\*  \*0\*0\*0\*0\*  \*0\*0\*0\*  \*0\*0\*  \*0\*  \*  i berulang sampai 7 karena n = 7  - i=1 k:= 1 to 6 mencetak spasi 6 kali  j:= 1 to 1  j=1 jika 1=7 or (1 mod 2 = 1) maka \*  jadi perulangan i yang ke-1 adalah  \*  - i=2 k:= 2 to 6 mencetak spasi 5 kali  j:= 1 to 3  j=1 jika 2=7 or (2 mod 2 = 1) true  jika 1 mod 2 = 1 maka \*  j=2 jika 2=7 or (2 mod 2 = 1) else  jika 2 mod 2 = 1 else maka 0  j=3 jika 2=7 or (2 mod 2 = 1) true  jika 3 mod 2 = 1 maka \*  jadi perulangan i yang ke-2 adalah  \*0\*  - i=3 k:= 3 to 6 mencetak spasi 4 kali  j:= 1 to 5  j=1 jika 3=7 or (3 mod 2 = 1) true  maka \*  j=2 jika 3=7 or (3 mod 2 = 1) true  maka \*  j=3 jika 3=7 or (3 mod 2 = 1) true  maka \*  j=4 jika 3=7 or (3 mod 2 = 1) true  maka \*  j=4 jika 3=7 or (3 mod 2 = 1) true  maka \*  jadi perulangan i yang ke-3 adalah  \*\*\*\*\*  - i=4 k:= 4 to 6 mencetak spasi 3 kali  j:= 1 to 7  j=1 jika 4=7 or (4 mod 2 = 1) else  jika 1 mod 2 = 1 maka \*  j=2 jika 4=7 or (4 mod 2 = 1) else  jika 2 mod 2 = 1 else maka 0  j=3 jika 4=7 or (4 mod 2 = 1) else  jika 3 mod 2 = 1 maka \*  j=4 jika 4=7 or (4 mod 2 = 1) else  jika 4 mod 2 = 1 else maka 0  j=5 jika 4=7 or (4 mod 2 = 1) else  jika 5 mod 2 = 1 maka \*  j=6 jika 4=7 or (4 mod 2 = 1) else  jika 6 mod 2 = 1 else maka 0  j=7 jika 4=7 or (4 mod 2 = 1) else  jika 5 mod 2 = 1 maka \*  jadi perulangan i yang ke-4 adalah  \*0\*0\*0\*  - i=5 k:= 5 to 6 mencetak spasi 2 kali  j:= 1 to 9  j=1 jika 5=7 or (5 mod 2 = 1) true  maka \*  j=2 jika 5=7 or (5 mod 2 = 1) true  maka \*  j=3 jika 5=7 or (5 mod 2 = 1) true  maka \*  j=4 jika 5=7 or (5 mod 2 = 1) true  maka \*  j=5 jika 5=7 or (5 mod 2 = 1) true  maka \*  j=6 jika 5=7 or (5 mod 2 = 1) true  maka \*  j=7 jika 5=7 or (5 mod 2 = 1) true  maka \*  j=8 jika 5=7 or (5 mod 2 = 1) true  maka \*  j=9 jika 5=7 or (5 mod 2 = 1) true  maka \*  jadi perulangan i yang ke-5 adalah  \*\*\*\*\*\*\*\*\*  - i=6 k:= 6 to 6 mencetak spasi 1 kali  j:= 1 to 11  j=1 jika 6=7 or (6 mod 2 = 1) else  jika 1 mod 2 = 1 maka \*  j=2 jika 6=7 or (6 mod 2 = 1) else  jika 2 mod 2 = 1 else maka 0  j=3 jika 6=7 or (6 mod 2 = 1) else  jika 3 mod 2 = 1 maka \*  j=4 jika 6=7 or (6 mod 2 = 1) else  jika 4 mod 2 = 1 else maka 0  j=5 jika 6=7 or (6 mod 2 = 1) else  jika 5 mod 2 = 1 maka \*  j=6 jika 6=7 or (6 mod 2 = 1) else  jika 6 mod 2 = 1 else maka 0  j=7 jika 6=7 or (6 mod 2 = 1) else  jika 7 mod 2 = 1 maka \*  j=8 jika 6=7 or (6 mod 2 = 1) else  jika 8 mod 2 = 1 else maka 0  j=9 jika 6=7 or (6 mod 2 = 1) else  jika 9 mod 2 = 1 maka \*  j=10 jika 6=7 or (6 mod 2 = 1) else  jika 10 mod 2 = 1 else maka 0  j=11 jika 6=7 or (6 mod 2 = 1) else  jika 11 mod 2 = 1 maka \*  jadi perulangan i yang ke-6 adalah  \*0\*0\*0\*0\*0\*  - i=7 k:= 7 to 6 tidak mencetak spasi  j:= 1 to 13  j=1 jika 7=7 or (5 mod 2 = 1) true  maka \*  j=2 jika 7=7 or (5 mod 2 = 1) true  maka \*  j=3 jika 7=7 or (5 mod 2 = 1) true  maka \*  j=4 jika 7=7 or (5 mod 2 = 1) true  maka \*  j=5 jika 7=7 or (5 mod 2 = 1) true  maka \*  j=6 jika 7=7 or (5 mod 2 = 1) true  maka \*  j=7 jika 7=7 or (5 mod 2 = 1) true  maka \*  j=8 jika 7=7 or (5 mod 2 = 1) true  maka \*  j=9 jika 7=7 or (5 mod 2 = 1) true  maka \*  j=10 jika 7=7 or (5 mod 2 = 1) true  maka \*  j=11 jika 7=7 or (5 mod 2 = 1) true  maka \*  j=12 jika 7=7 or (5 mod 2 = 1) true  maka \*  j=13 jika 7=7 or (5 mod 2 = 1) true  maka \*  jadi perulangan i yang ke-7 adalah  \*\*\*\*\*\*\*\*\*\*\*\*\*  i := berulang dari 7 ke 2  - i=7 m:= 7 to 7 tidak mencetak spasi  O= 13 to 3  O=13 jika (13 mod 2 = 1) true  maka \*  O=12 jika (12 mod 2 = 1) else  maka 0  O=13 jika (13 mod 2 = 1) true  maka \*  O=12 jika (12 mod 2 = 1) else  maka 0  O=11 jika (11 mod 2 = 1) true  maka \*  O=10 jika (10 mod 2 = 1) else  maka 0  O=9 jika (9 mod 2 = 1) true  maka \*  O=8 jika (8 mod 2 = 1) else  maka 0  O=7 jika (7 mod 2 = 1) true  maka \*  O=6 jika (6 mod 2 = 1) else  maka 0  O=5 jika (5 mod 2 = 1) true  maka \*  O=4 jika (4 mod 2 = 1) else  maka 0  O=3 jika (3 mod 2 = 1) else  maka \*  jadi perulangan i yang ke-7 adalah  \*0\*0\*0\*0\*0\*  - i=6 m:= 6 to 7 mencetak 1 spasi  O:= 11 to 3  O=11 jika (11 mod 2 = 1) true  maka \*  O=10 jika (10 mod 2 = 1) else  maka 0  O=9 jika (9 mod 2 = 1) true  maka \*  O=8 jika (8 mod 2 = 1) else  maka 0  O=7 jika (7 mod 2 = 1) true  maka \*  O=6 jika (6 mod 2 = 1) else  maka 0  O=5 jika (5 mod 2 = 1) true  maka \*  O=4 jika (4 mod 2 = 1) else  maka 0  O=3 jika (3 mod 2 = 1) true  maka \*  jadi perulangan i yang ke-6 adalah  \*0\*0\*0\*0\*  - i=5 m:= 5 to 7 mencetak 2 spasi  O:= 9 to 3  O=9 jika (9 mod 2 = 1) true  maka \*  O=8 jika (8 mod 2 = 1) else  maka 0  O=7 jika (7 mod 2 = 1) true  maka \*  O=6 jika (6 mod 2 = 1) else  maka 0  O=5 jika (5 mod 2 = 1) true  maka \*  O=4 jika (4 mod 2 = 1) else  maka 0  O=3 jika (3 mod 2 = 1) true  maka \*  jadi perulangan i yang ke-5 adalah  \*0\*0\*0\*  - i=4 m:= 4 to 7 mencetak 3 spasi  O:= 7 to 3  O=7 jika (7 mod 2 = 1) true  maka \*  O=6 jika (6 mod 2 = 1) else  maka 0  O=5 jika (5 mod 2 = 1) true  maka \*  O=4 jika (4 mod 2 = 1) else  maka 0  O=3 jika (3 mod 2 = 1) true  maka \*  jadi perulangan i yang ke-4 adalah  \*0\*0\*  - i=3 m:= 3 to 7 mencetak 4 spasi  O:= 5 to 3  O=5 jika (5 mod 2 = 1) true  maka \*  O=4 jika (4 mod 2 = 1) else  maka 0  O=3 jika (3 mod 2 = 1) true  maka \*  jadi perulangan i yang ke-3 adalah  \*0\*  - i=2 m:= 2 to 7 mencetak 5 spasi  O:= 3 to 3  O=3 jika (3 mod 2 = 1) true  maka \*  jadi perulangan i yang ke-2 adalah  \*  Program berhenti karena perulangan i sudah sampai 2 karena i:=7 downto 2 |

1. No.40

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| --- |
| Berapakah nilai yang dihasilkan dari pemanggilan mencari(50)? |
| function mencari(N:integer):integer;  var i,j,z:integer;  begin  mencari:=0;  for i:=1 to N do  begin  j:=1;  z:=0;  while (j <= i) do  begin  if (i mod j = 0) then inc(z);  inc(j);  end;  if (z mod 2 <> 0) then  mencari:=mencari+1;  end;  end; |
| Kode Program Dimodifikasi : *(Hasil Modifikasi Diwarnai)* |
| uses crt;  function mencari(N:integer):integer;  var  i,j,z:integer;  begin  mencari:=0;  for i:=1 to N do  begin  j:=1;  z:=0;  while (j <= i) do  begin  if (i mod j = 0) then inc(z);  write(i,' mod ',j,' z = ',z);  inc(j);  writeln(' j = ',j);  end;  if (z mod 2 <> 0) then  mencari:=mencari+1;  writeln('hasil mencari = ',mencari);  end;  end;  var  x : integer;  begin  readln(x);  writeln(mencari(x));  readln;  end. |
| Output Dari Kode Program Yang Dimodifikasi : |
| masukan nilai : 50  1 mod 1 = 0 hasil z : 1 j :2  hasil mencari :1  2 mod 1 = 0 hasil z : 1 j :2  2 mod 2 = 0 hasil z : 2 j :3  3 mod 1 = 0 hasil z : 1 j :2  3 mod 2 = 0 hasil z : 1 j :3  3 mod 3 = 0 hasil z : 2 j :4  4 mod 1 = 0 hasil z : 1 j :2  4 mod 2 = 0 hasil z : 2 j :3  4 mod 3 = 0 hasil z : 2 j :4  4 mod 4 = 0 hasil z : 3 j :5  hasil mencari :2  5 mod 1 = 0 hasil z : 1 j :2  5 mod 2 = 0 hasil z : 1 j :3  5 mod 3 = 0 hasil z : 1 j :4  5 mod 4 = 0 hasil z : 1 j :5  5 mod 5 = 0 hasil z : 2 j :6  6 mod 1 = 0 hasil z : 1 j :2  6 mod 2 = 0 hasil z : 2 j :3  6 mod 3 = 0 hasil z : 3 j :4  6 mod 4 = 0 hasil z : 3 j :5  6 mod 5 = 0 hasil z : 3 j :6  6 mod 6 = 0 hasil z : 4 j :7  7 mod 1 = 0 hasil z : 1 j :2  7 mod 2 = 0 hasil z : 1 j :3  7 mod 3 = 0 hasil z : 1 j :4  7 mod 4 = 0 hasil z : 1 j :5  7 mod 5 = 0 hasil z : 1 j :6  7 mod 6 = 0 hasil z : 1 j :7  7 mod 7 = 0 hasil z : 2 j :8  8 mod 1 = 0 hasil z : 1 j :2  8 mod 2 = 0 hasil z : 2 j :3  8 mod 3 = 0 hasil z : 2 j :4  8 mod 4 = 0 hasil z : 3 j :5  8 mod 5 = 0 hasil z : 3 j :6  8 mod 6 = 0 hasil z : 3 j :7  8 mod 7 = 0 hasil z : 3 j :8  8 mod 8 = 0 hasil z : 4 j :9  9 mod 1 = 0 hasil z : 1 j :2  9 mod 2 = 0 hasil z : 1 j :3  9 mod 3 = 0 hasil z : 2 j :4  9 mod 4 = 0 hasil z : 2 j :5  9 mod 5 = 0 hasil z : 2 j :6  9 mod 6 = 0 hasil z : 2 j :7  9 mod 7 = 0 hasil z : 2 j :8  9 mod 8 = 0 hasil z : 2 j :9  9 mod 9 = 0 hasil z : 3 j :10  hasil mencari :3  10 mod 1 = 0 hasil z : 1 j :2  10 mod 2 = 0 hasil z : 2 j :3  10 mod 3 = 0 hasil z : 2 j :4  10 mod 4 = 0 hasil z : 2 j :5  10 mod 5 = 0 hasil z : 3 j :6  10 mod 6 = 0 hasil z : 3 j :7  10 mod 7 = 0 hasil z : 3 j :8  10 mod 8 = 0 hasil z : 3 j :9  10 mod 9 = 0 hasil z : 3 j :10  10 mod 10 = 0 hasil z : 4 j :11  11 mod 1 = 0 hasil z : 1 j :2  11 mod 2 = 0 hasil z : 1 j :3  11 mod 3 = 0 hasil z : 1 j :4  11 mod 4 = 0 hasil z : 1 j :5  11 mod 5 = 0 hasil z : 1 j :6  11 mod 6 = 0 hasil z : 1 j :7  11 mod 7 = 0 hasil z : 1 j :8  11 mod 8 = 0 hasil z : 1 j :9  11 mod 9 = 0 hasil z : 1 j :10  11 mod 10 = 0 hasil z : 1 j :11  11 mod 11 = 0 hasil z : 2 j :12  12 mod 1 = 0 hasil z : 1 j :2  12 mod 2 = 0 hasil z : 2 j :3  12 mod 3 = 0 hasil z : 3 j :4  12 mod 4 = 0 hasil z : 4 j :5  12 mod 5 = 0 hasil z : 4 j :6  12 mod 6 = 0 hasil z : 5 j :7  12 mod 7 = 0 hasil z : 5 j :8  12 mod 8 = 0 hasil z : 5 j :9  12 mod 9 = 0 hasil z : 5 j :10  12 mod 10 = 0 hasil z : 5 j :11  12 mod 11 = 0 hasil z : 5 j :12  12 mod 12 = 0 hasil z : 6 j :13  13 mod 1 = 0 hasil z : 1 j :2  13 mod 2 = 0 hasil z : 1 j :3  13 mod 3 = 0 hasil z : 1 j :4  13 mod 4 = 0 hasil z : 1 j :5  13 mod 5 = 0 hasil z : 1 j :6  13 mod 6 = 0 hasil z : 1 j :7  13 mod 7 = 0 hasil z : 1 j :8  13 mod 8 = 0 hasil z : 1 j :9  13 mod 9 = 0 hasil z : 1 j :10  13 mod 10 = 0 hasil z : 1 j :11  13 mod 11 = 0 hasil z : 1 j :12  13 mod 12 = 0 hasil z : 1 j :13  13 mod 13 = 0 hasil z : 2 j :14  14 mod 1 = 0 hasil z : 1 j :2  14 mod 2 = 0 hasil z : 2 j :3  14 mod 3 = 0 hasil z : 2 j :4  14 mod 4 = 0 hasil z : 2 j :5  14 mod 5 = 0 hasil z : 2 j :6  14 mod 6 = 0 hasil z : 2 j :7  14 mod 7 = 0 hasil z : 3 j :8  14 mod 8 = 0 hasil z : 3 j :9  14 mod 9 = 0 hasil z : 3 j :10  14 mod 10 = 0 hasil z : 3 j :11  14 mod 11 = 0 hasil z : 3 j :12  14 mod 12 = 0 hasil z : 3 j :13  14 mod 13 = 0 hasil z : 3 j :14  14 mod 14 = 0 hasil z : 4 j :15  15 mod 1 = 0 hasil z : 1 j :2  15 mod 2 = 0 hasil z : 1 j :3  15 mod 3 = 0 hasil z : 2 j :4  15 mod 4 = 0 hasil z : 2 j :5  15 mod 5 = 0 hasil z : 3 j :6  15 mod 6 = 0 hasil z : 3 j :7  15 mod 7 = 0 hasil z : 3 j :8  15 mod 8 = 0 hasil z : 3 j :9  15 mod 9 = 0 hasil z : 3 j :10  15 mod 10 = 0 hasil z : 3 j :11  15 mod 11 = 0 hasil z : 3 j :12  15 mod 12 = 0 hasil z : 3 j :13  15 mod 13 = 0 hasil z : 3 j :14  15 mod 14 = 0 hasil z : 3 j :15  15 mod 15 = 0 hasil z : 4 j :16  16 mod 1 = 0 hasil z : 1 j :2  16 mod 2 = 0 hasil z : 2 j :3  16 mod 3 = 0 hasil z : 2 j :4  16 mod 4 = 0 hasil z : 3 j :5  16 mod 5 = 0 hasil z : 3 j :6  16 mod 6 = 0 hasil z : 3 j :7  16 mod 7 = 0 hasil z : 3 j :8  16 mod 8 = 0 hasil z : 4 j :9  16 mod 9 = 0 hasil z : 4 j :10  16 mod 10 = 0 hasil z : 4 j :11  16 mod 11 = 0 hasil z : 4 j :12  16 mod 12 = 0 hasil z : 4 j :13  16 mod 13 = 0 hasil z : 4 j :14  16 mod 14 = 0 hasil z : 4 j :15  16 mod 15 = 0 hasil z : 4 j :16  16 mod 16 = 0 hasil z : 5 j :17  hasil mencari :4  17 mod 1 = 0 hasil z : 1 j :2  17 mod 2 = 0 hasil z : 1 j :3  17 mod 3 = 0 hasil z : 1 j :4  17 mod 4 = 0 hasil z : 1 j :5  17 mod 5 = 0 hasil z : 1 j :6  17 mod 6 = 0 hasil z : 1 j :7  17 mod 7 = 0 hasil z : 1 j :8  17 mod 8 = 0 hasil z : 1 j :9  17 mod 9 = 0 hasil z : 1 j :10  17 mod 10 = 0 hasil z : 1 j :11  17 mod 11 = 0 hasil z : 1 j :12  17 mod 12 = 0 hasil z : 1 j :13  17 mod 13 = 0 hasil z : 1 j :14  17 mod 14 = 0 hasil z : 1 j :15  17 mod 15 = 0 hasil z : 1 j :16  17 mod 16 = 0 hasil z : 1 j :17  17 mod 17 = 0 hasil z : 2 j :18  18 mod 1 = 0 hasil z : 1 j :2  18 mod 2 = 0 hasil z : 2 j :3  18 mod 3 = 0 hasil z : 3 j :4  18 mod 4 = 0 hasil z : 3 j :5  18 mod 5 = 0 hasil z : 3 j :6  18 mod 6 = 0 hasil z : 4 j :7  18 mod 7 = 0 hasil z : 4 j :8  18 mod 8 = 0 hasil z : 4 j :9  18 mod 9 = 0 hasil z : 5 j :10  18 mod 10 = 0 hasil z : 5 j :11  18 mod 11 = 0 hasil z : 5 j :12  18 mod 12 = 0 hasil z : 5 j :13  18 mod 13 = 0 hasil z : 5 j :14  18 mod 14 = 0 hasil z : 5 j :15  18 mod 15 = 0 hasil z : 5 j :16  18 mod 16 = 0 hasil z : 5 j :17  18 mod 17 = 0 hasil z : 5 j :18  18 mod 18 = 0 hasil z : 6 j :19  19 mod 1 = 0 hasil z : 1 j :2  19 mod 2 = 0 hasil z : 1 j :3  19 mod 3 = 0 hasil z : 1 j :4  19 mod 4 = 0 hasil z : 1 j :5  19 mod 5 = 0 hasil z : 1 j :6  19 mod 6 = 0 hasil z : 1 j :7  19 mod 7 = 0 hasil z : 1 j :8  19 mod 8 = 0 hasil z : 1 j :9  19 mod 9 = 0 hasil z : 1 j :10  19 mod 10 = 0 hasil z : 1 j :11  19 mod 11 = 0 hasil z : 1 j :12  19 mod 12 = 0 hasil z : 1 j :13  19 mod 13 = 0 hasil z : 1 j :14  19 mod 14 = 0 hasil z : 1 j :15  19 mod 15 = 0 hasil z : 1 j :16  19 mod 16 = 0 hasil z : 1 j :17  19 mod 17 = 0 hasil z : 1 j :18  19 mod 18 = 0 hasil z : 1 j :19  19 mod 19 = 0 hasil z : 2 j :20  20 mod 1 = 0 hasil z : 1 j :2  20 mod 2 = 0 hasil z : 2 j :3  20 mod 3 = 0 hasil z : 2 j :4  20 mod 4 = 0 hasil z : 3 j :5  20 mod 5 = 0 hasil z : 4 j :6  20 mod 6 = 0 hasil z : 4 j :7  20 mod 7 = 0 hasil z : 4 j :8  20 mod 8 = 0 hasil z : 4 j :9  20 mod 9 = 0 hasil z : 4 j :10  20 mod 10 = 0 hasil z : 5 j :11  20 mod 11 = 0 hasil z : 5 j :12  20 mod 12 = 0 hasil z : 5 j :13  20 mod 13 = 0 hasil z : 5 j :14  20 mod 14 = 0 hasil z : 5 j :15  20 mod 15 = 0 hasil z : 5 j :16  20 mod 16 = 0 hasil z : 5 j :17  20 mod 17 = 0 hasil z : 5 j :18  20 mod 18 = 0 hasil z : 5 j :19  20 mod 19 = 0 hasil z : 5 j :20  20 mod 20 = 0 hasil z : 6 j :21  21 mod 1 = 0 hasil z : 1 j :2  21 mod 2 = 0 hasil z : 1 j :3  21 mod 3 = 0 hasil z : 2 j :4  21 mod 4 = 0 hasil z : 2 j :5  21 mod 5 = 0 hasil z : 2 j :6  21 mod 6 = 0 hasil z : 2 j :7  21 mod 7 = 0 hasil z : 3 j :8  21 mod 8 = 0 hasil z : 3 j :9  21 mod 9 = 0 hasil z : 3 j :10  21 mod 10 = 0 hasil z : 3 j :11  21 mod 11 = 0 hasil z : 3 j :12  21 mod 12 = 0 hasil z : 3 j :13  21 mod 13 = 0 hasil z : 3 j :14  21 mod 14 = 0 hasil z : 3 j :15  21 mod 15 = 0 hasil z : 3 j :16  21 mod 16 = 0 hasil z : 3 j :17  21 mod 17 = 0 hasil z : 3 j :18  21 mod 18 = 0 hasil z : 3 j :19  21 mod 19 = 0 hasil z : 3 j :20  21 mod 20 = 0 hasil z : 3 j :21  21 mod 21 = 0 hasil z : 4 j :22  22 mod 1 = 0 hasil z : 1 j :2  22 mod 2 = 0 hasil z : 2 j :3  22 mod 3 = 0 hasil z : 2 j :4  22 mod 4 = 0 hasil z : 2 j :5  22 mod 5 = 0 hasil z : 2 j :6  22 mod 6 = 0 hasil z : 2 j :7  22 mod 7 = 0 hasil z : 2 j :8  22 mod 8 = 0 hasil z : 2 j :9  22 mod 9 = 0 hasil z : 2 j :10  22 mod 10 = 0 hasil z : 2 j :11  22 mod 11 = 0 hasil z : 3 j :12  22 mod 12 = 0 hasil z : 3 j :13  22 mod 13 = 0 hasil z : 3 j :14  22 mod 14 = 0 hasil z : 3 j :15  22 mod 15 = 0 hasil z : 3 j :16  22 mod 16 = 0 hasil z : 3 j :17  22 mod 17 = 0 hasil z : 3 j :18  22 mod 18 = 0 hasil z : 3 j :19  22 mod 19 = 0 hasil z : 3 j :20  22 mod 20 = 0 hasil z : 3 j :21  22 mod 21 = 0 hasil z : 3 j :22  22 mod 22 = 0 hasil z : 4 j :23  23 mod 1 = 0 hasil z : 1 j :2  23 mod 2 = 0 hasil z : 1 j :3  23 mod 3 = 0 hasil z : 1 j :4  23 mod 4 = 0 hasil z : 1 j :5  23 mod 5 = 0 hasil z : 1 j :6  23 mod 6 = 0 hasil z : 1 j :7  23 mod 7 = 0 hasil z : 1 j :8  23 mod 8 = 0 hasil z : 1 j :9  23 mod 9 = 0 hasil z : 1 j :10  23 mod 10 = 0 hasil z : 1 j :11  23 mod 11 = 0 hasil z : 1 j :12  23 mod 12 = 0 hasil z : 1 j :13  23 mod 13 = 0 hasil z : 1 j :14  23 mod 14 = 0 hasil z : 1 j :15  23 mod 15 = 0 hasil z : 1 j :16  23 mod 16 = 0 hasil z : 1 j :17  23 mod 17 = 0 hasil z : 1 j :18  23 mod 18 = 0 hasil z : 1 j :19  23 mod 19 = 0 hasil z : 1 j :20  23 mod 20 = 0 hasil z : 1 j :21  23 mod 21 = 0 hasil z : 1 j :22  23 mod 22 = 0 hasil z : 1 j :23  23 mod 23 = 0 hasil z : 2 j :24  24 mod 1 = 0 hasil z : 1 j :2  24 mod 2 = 0 hasil z : 2 j :3  24 mod 3 = 0 hasil z : 3 j :4  24 mod 4 = 0 hasil z : 4 j :5  24 mod 5 = 0 hasil z : 4 j :6  24 mod 6 = 0 hasil z : 5 j :7  24 mod 7 = 0 hasil z : 5 j :8  24 mod 8 = 0 hasil z : 6 j :9  24 mod 9 = 0 hasil z : 6 j :10  24 mod 10 = 0 hasil z : 6 j :11  24 mod 11 = 0 hasil z : 6 j :12  24 mod 12 = 0 hasil z : 7 j :13  24 mod 13 = 0 hasil z : 7 j :14  24 mod 14 = 0 hasil z : 7 j :15  24 mod 15 = 0 hasil z : 7 j :16  24 mod 16 = 0 hasil z : 7 j :17  24 mod 17 = 0 hasil z : 7 j :18  24 mod 18 = 0 hasil z : 7 j :19  24 mod 19 = 0 hasil z : 7 j :20  24 mod 20 = 0 hasil z : 7 j :21  24 mod 21 = 0 hasil z : 7 j :22  24 mod 22 = 0 hasil z : 7 j :23  24 mod 23 = 0 hasil z : 7 j :24  24 mod 24 = 0 hasil z : 8 j :25  25 mod 1 = 0 hasil z : 1 j :2  25 mod 2 = 0 hasil z : 1 j :3  25 mod 3 = 0 hasil z : 1 j :4  25 mod 4 = 0 hasil z : 1 j :5  25 mod 5 = 0 hasil z : 2 j :6  25 mod 6 = 0 hasil z : 2 j :7  25 mod 7 = 0 hasil z : 2 j :8  25 mod 8 = 0 hasil z : 2 j :9  25 mod 9 = 0 hasil z : 2 j :10  25 mod 10 = 0 hasil z : 2 j :11  25 mod 11 = 0 hasil z : 2 j :12  25 mod 12 = 0 hasil z : 2 j :13  25 mod 13 = 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42 mod 5 = 0 hasil z : 3 j :6  42 mod 6 = 0 hasil z : 4 j :7  42 mod 7 = 0 hasil z : 5 j :8  42 mod 8 = 0 hasil z : 5 j :9  42 mod 9 = 0 hasil z : 5 j :10  42 mod 10 = 0 hasil z : 5 j :11  42 mod 11 = 0 hasil z : 5 j :12  42 mod 12 = 0 hasil z : 5 j :13  42 mod 13 = 0 hasil z : 5 j :14  42 mod 14 = 0 hasil z : 6 j :15  42 mod 15 = 0 hasil z : 6 j :16  42 mod 16 = 0 hasil z : 6 j :17  42 mod 17 = 0 hasil z : 6 j :18  42 mod 18 = 0 hasil z : 6 j :19  42 mod 19 = 0 hasil z : 6 j :20  42 mod 20 = 0 hasil z : 6 j :21  42 mod 21 = 0 hasil z : 7 j :22  42 mod 22 = 0 hasil z : 7 j :23  42 mod 23 = 0 hasil z : 7 j :24  42 mod 24 = 0 hasil z : 7 j :25  42 mod 25 = 0 hasil z : 7 j :26  42 mod 26 = 0 hasil z : 7 j :27  42 mod 27 = 0 hasil z : 7 j :28  42 mod 28 = 0 hasil z : 7 j :29  42 mod 29 = 0 hasil z : 7 j :30  42 mod 30 = 0 hasil z : 7 j :31  42 mod 31 = 0 hasil z : 7 j :32  42 mod 32 = 0 hasil z : 7 j :33  42 mod 33 = 0 hasil z : 7 j :34  42 mod 34 = 0 hasil z : 7 j :35  42 mod 35 = 0 hasil z : 7 j :36  42 mod 36 = 0 hasil z : 7 j :37  42 mod 37 = 0 hasil z : 7 j :38  42 mod 38 = 0 hasil z : 7 j :39  42 mod 39 = 0 hasil z : 7 j :40  42 mod 40 = 0 hasil z : 7 j :41  42 mod 41 = 0 hasil z : 7 j :42  42 mod 42 = 0 hasil z : 8 j :43  43 mod 1 = 0 hasil z : 1 j :2  43 mod 2 = 0 hasil z : 1 j :3  43 mod 3 = 0 hasil z : 1 j :4  43 mod 4 = 0 hasil z : 1 j :5  43 mod 5 = 0 hasil z : 1 j :6  43 mod 6 = 0 hasil z : 1 j :7  43 mod 7 = 0 hasil z : 1 j :8  43 mod 8 = 0 hasil z : 1 j :9  43 mod 9 = 0 hasil z : 1 j :10  43 mod 10 = 0 hasil z : 1 j :11  43 mod 11 = 0 hasil z : 1 j :12  43 mod 12 = 0 hasil z : 1 j :13  43 mod 13 = 0 hasil z : 1 j :14  43 mod 14 = 0 hasil z : 1 j :15  43 mod 15 = 0 hasil z : 1 j :16  43 mod 16 = 0 hasil z : 1 j :17  43 mod 17 = 0 hasil z : 1 j :18  43 mod 18 = 0 hasil z : 1 j :19  43 mod 19 = 0 hasil z : 1 j :20  43 mod 20 = 0 hasil z : 1 j :21  43 mod 21 = 0 hasil z : 1 j :22  43 mod 22 = 0 hasil z : 1 j :23  43 mod 23 = 0 hasil z : 1 j :24  43 mod 24 = 0 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:14  48 mod 14 = 0 hasil z : 7 j :15  48 mod 15 = 0 hasil z : 7 j :16  48 mod 16 = 0 hasil z : 8 j :17  48 mod 17 = 0 hasil z : 8 j :18  48 mod 18 = 0 hasil z : 8 j :19  48 mod 19 = 0 hasil z : 8 j :20  48 mod 20 = 0 hasil z : 8 j :21  48 mod 21 = 0 hasil z : 8 j :22  48 mod 22 = 0 hasil z : 8 j :23  48 mod 23 = 0 hasil z : 8 j :24  48 mod 24 = 0 hasil z : 9 j :25  48 mod 25 = 0 hasil z : 9 j :26  48 mod 26 = 0 hasil z : 9 j :27  48 mod 27 = 0 hasil z : 9 j :28  48 mod 28 = 0 hasil z : 9 j :29  48 mod 29 = 0 hasil z : 9 j :30  48 mod 30 = 0 hasil z : 9 j :31  48 mod 31 = 0 hasil z : 9 j :32  48 mod 32 = 0 hasil z : 9 j :33  48 mod 33 = 0 hasil z : 9 j :34  48 mod 34 = 0 hasil z : 9 j :35  48 mod 35 = 0 hasil z : 9 j :36  48 mod 36 = 0 hasil z : 9 j :37  48 mod 37 = 0 hasil z : 9 j :38  48 mod 38 = 0 hasil z : 9 j :39  48 mod 39 = 0 hasil z : 9 j :40  48 mod 40 = 0 hasil z : 9 j :41  48 mod 41 = 0 hasil z : 9 j :42  48 mod 42 = 0 hasil z : 9 j :43  48 mod 43 = 0 hasil z : 9 j :44  48 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hasil z : 5 j :39  50 mod 39 = 0 hasil z : 5 j :40  50 mod 40 = 0 hasil z : 5 j :41  50 mod 41 = 0 hasil z : 5 j :42  50 mod 42 = 0 hasil z : 5 j :43  50 mod 43 = 0 hasil z : 5 j :44  50 mod 44 = 0 hasil z : 5 j :45  50 mod 45 = 0 hasil z : 5 j :46  50 mod 46 = 0 hasil z : 5 j :47  50 mod 47 = 0 hasil z : 5 j :48  50 mod 48 = 0 hasil z : 5 j :49  50 mod 49 = 0 hasil z : 5 j :50  50 mod 50 = 0 hasil z : 6 j :51  hasil mencari : 7 |

1. No.41

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| Berapakah nilai yang dihasilkan dari pemanggilan mencari(9000)? |
| function mencari(N:integer):integer;  var i,j,z:integer;  begin  mencari:=0;  for i:=1 to N do  begin  j:=1;  z:=0;  while (j <= i) do  begin  if (i mod j = 0) then inc(z);  inc(j);  end;  if (z mod 2 <> 0) then  mencari:=mencari+1;  end;  end; |
| Kode Program Dimodifikasi : *(Hasil Modifikasi Diwarnai)* |
| uses crt;  function mencari(N:integer):integer;  var i,j,z:integer;  begin  mencari:=0;  for i:=1 to N do  begin  j:=1;  z:=0;  while (j <= i) do  begin  if (i mod j = 0) then inc(z);  inc(j);  end;  if (z mod 2 <> 0) then  mencari:=mencari+1;  end;  end;  var  x : integer;  begin  readln(x);  writeln(mencari(x));  readln;  end. |
| Output Dari Kode Program Yang Dimodifikasi : |
| Outputnya terlalu panjang ,  dan bila dihitung seperti perhitungan di atas maka perhitungan perulangan dari i = 1 to 9000 terdapat 94 kali nilai z bernilai ganjil jadi hasil mencari yakni 94 |

1. No.42

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| Keluaran dari program di atas adalah .... |
| var  data1 : array[1..10] of integer =  (3,9,2,2,1,5,7,5,5,8);  data2,data3 : array[1..10] of integer;  i : integer;  begin  for i:= 1 to 10 do  data2[i] := 0;  for i:= 1 to 10 do  inc(data2[data1[i]]);  for i:= 2 to 10 do  data2[i] := data2[i] + data2[i-1];  for i:= 10 downto 1 do  begin  data3[data2[data1[i]]] := data1[i];  dec(data2[data1[i]]);  end;  for i:= 1 to 10 do  write(data3[i]);  end |
| Kode Program Dimodifikasi : *(Hasil Modifikasi Diwarnai)* |
| var  data1 : array[1..10] of integer;  data2,data3 : array[1..10] of integer;  i : integer;  begin  data1[1]:=3;  data1[2]:=9;  data1[3]:=2;  data1[4]:=2;  data1[5]:=1;  data1[6]:=5;  data1[7]:=7;  data1[8]:=5;  data1[9]:=5;  data1[10]:=8;  for i:= 1 to 10 do  data2[i] := 0;  for i:= 1 to 10 do  inc(data2[data1[i]]);  for i:= 2 to 10 do  data2[i] := data2[i] + data2[i-1];  for i:= 10 downto 1 do  begin  data3[data2[data1[i]]] := data1[i];  dec(data2[data1[i]]);  end;  for i:= 1 to 10 do  write(data3[i]);  readln;  end. |
| Output Dari Kode Program Yang Dimodifikasi : |
| diketahui data1 = 3,9,2,2,1,5,7,5,5,8  for i:= 1 to 10 do  data2[i] := 0;  for i:= 1 to 10 do  inc(data2[data1[i]]);  pada coding di atas akan menghasilkan nilai nilai untuk data2  data1[1]= ada nilai 1 di array data1 kemudian di inc ke data2 =1  data1[2]= ada 2 nilai 2 di array data1 kemudian di inc ke data2 satu persatu = 2  data1[3]= ada 1 nilai di array data1 kemudian di inc ke data2 = 1  data1[4]= tidak ada nilai 4 di array data1 kemudian data2= 0  data1[5]= ada 3 nilai 5 di array data1 kemudian di inc ke data2 satu persatu = 3  data1[6]= tidak ada nilai 6 di array data1 kemudian data2= 0  data1[7]= ada 1 nilai 7 di array data1 kemudian di inc ke data2 = 1  data1[8]=ada 1 nilai 8 di array data1 kemudian di inc ke data2 = 1  data1[9]= ada 1 nilai 8 di array data1 kemudian di inc ke data2 = 1  data1[10]= ada 1 nilai 8 di array data1 kemudian di inc ke data2 = 1  jadi data2[i]= 1,2,1,0,3,0,1,1,1  selanjutnya menghitung coding dibawah ini  for i:= 2 to 10 do  data2[i] := data2[i] + data2[i-1];  coding diatas akan merubah nilai nilai data2  i:= 2,3,4,5,6,7,8,9,10  data2[i] := data2[2] 2 + data2[1] 1; data2 = 3  data2[i] := data2[3] 1 + data2[2] 3; data2 = 4  data2[i] := data2[4] 0 + data2[3] 4; data2 = 4  data2[i] := data2[5] 3 + data[4] 4; data2 = 7  data2[i] := data2[6] 0 + data[5] 7; data2 = 7  data2[i] := data2[7] 1 + data[6] 7; data2 = 8  data2[i] := data2[8] 1 + data[7] 8; data2 = 9  data2[i] := data2[9] 1 + data[8] 9; data2 = 10  data2[i] := data2[10] 10  jadi data2[i] di update = 1,3,4,4,7,8,9,10,10  data1 = 3,9,2,2,1,5,7,5,5,8  data2 = 1,3,4,4,7,8,9,10  for i:= 10 downto 1 do  begin  data3[data2[data1[i]]] := data1[i];  dec(data2[data1[i]]);  end;  i:= 10,9,8,7,6,5,4,3,2,1  data3=9,8,  data3 [data2[10]=1 + [data1[10]=0 := data1[2]=9  dec(data2[9]=1 + [data1[9]=1]]); jadi di kurang 2 karena dec  program trus berulangan sampai 1 karena i:= 10 downto 1  Pada perintah berikutnya hanya melakukan pencetakan ke layar dengan write, maka keluarannya adalah: 1223555789 dari hasil data3 |

1. No.43

|  |
| --- |
| Apakah keluaran dari program di atas? |
| var i,j,x: integer;  begin  x := 0;  for i:=1 to 5 do begin  for j:= 5 downto 1 do begin  x := x + i + j;  end;  end;  writeln(x); end. |
| Kode Program Dimodifikasi : *(Hasil Modifikasi Diwarnai)* |
| var i,j,x: integer;  begin  x := 0;  for i:=1 to 5 do begin  for j:= 5 downto 1 do begin  x := x + i + j;  writeln(i,' ',j,' ',x);  end;  end;  writeln(x);  readln;  end. |
| Output Dari Kode Program Yang Dimodifikasi : |
| x:=x+i+j;  x:=x+1+5;  6:=6+1+4;  11:=11+1+3;  15=15+1+2;  18:=18+1+1;  20:=20+2+5;  27:=27+2+4;  33:=33+2+3;  38:=38+2+2;  42:=42+2+1;  45:=45+3+5;  53:=53+3+4;  60:=60+3+3;  66:=66+3+2;  71:=71+3+1;  75:=75+4+5;  84:=84+4+4;  92:=92+4+3;  99:=99+4+2;  105:=105+4+1;  110:=110+5+5;  120:=120+5+4;  129:=129+5+3;  137:=137+5+2;  144:=144+5+1;  x:=150; |

1. No.44

|  |
| --- |
| Apa keluaran yang dihasilkan dari program tersebut? |
| var x,y:integer;  procedure abc(a:integer;var b:integer);  var c:integer;  begin  if not((a=0)or(b=0)) then  if (a>b) then  begin  a:=a mod b;  abc(b,a);  end  else  begin  b:=b mod a;  abc(a,b);  end;  write(a,' ');  end;  begin  x:=219; y:=168;  abc (x,y);  end. |
| Kode Program Dimodifikasi : *(Hasil Modifikasi Diwarnai)* |
| var x,y:integer;  procedure abc(a:integer;var b:integer);  var c:integer;  begin  if not((a=0)or(b=0)) then  if (a>b) then  begin  a:=a mod b;  abc(b,a);  writeln('a = ',a,' b = ',b);  end  else  begin  b:=b mod a;  abc(a,b);  end;  end;  begin  x:=219; y:=168;  abc(x,y);  readln;  end. |
| Output Dari Kode Program Yang Dimodifikasi : |
| abc(219,168)  abc(168,51)  abc(51,15)  abc(15,6)  abc(6,3)  abc(3,0)  a = 3 |

1. No.45

|  |
| --- |
| Apa keluaran yang dihasilkan dari program tersebut? |
| var x,y:integer;  procedure abc(a:integer;var b:integer);  var c:integer;  begin  if not((a=0)or(b=0)) then  if (a>b) then  begin  a:=a mod b;  abc(b,a);  end  else  begin  b:=b mod a;  abc(a,b);  end;  write(a,' ');  end;  begin  x:=219; y:=168;  abc (x,y);  end. |
| Kode Program Dimodifikasi : *(Hasil Modifikasi Diwarnai)* |
| var x,y:integer;  procedure abc(a:integer;var b:integer);  var c:integer;  begin  if not((a=0)or(b=0)) then  if (a>b) then  begin  a:=a mod b;  abc(b,a);  writeln('a = ',a,' b = ',b);  end  else  begin  b:=b mod a;  abc(a,b);  end;  end;  begin  x:=219; y:=168;  abc(x,y);  readln;  end. |
| Output Dari Kode Program Yang Dimodifikasi : |
| abc(219,168)  abc(168,51)  abc(51,15)  abc(15,6)  abc(6,3)  abc(3,0)  b = 0 |

1. No.46

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| --- |
| Jika potongan program dijalankan dengan masukan n = 2013, maka program akan menuliskan keluaran … |
| var sum, i, j, n, c : integer;  begin  readln(n);  sum := 0;  for i := 2 to n do  begin  c := 0;  j := i;  while (j > 0) do  begin  if (j mod 2 = 1) then c := c + 1;  j := j div 2;  end;  if (c = 1) then sum := sum + 1;  end;  writeln(sum);  end. |
| Kode Program Dimodifikasi : *(Hasil Modifikasi Diwarnai)* |
| var sum, i, j, n, c : integer;  begin  readln(n);  sum := 0;  for i := 2 to n do  begin  c := 0;  j := i;  while (j > 0) do  begin  if (j mod 2 = 1) then  c := c + 1;  j := j div 2;  end;  if (c = 1) then  sum := sum + 1;  end;  write(sum);  readln;  end. |
| Output Dari Kode Program Yang Dimodifikasi : |
| for i := 2 to n do  diketahui n = 2013  jadi perulangan i dari 2 sampai 2013  begin  if (j mod 2 = 1) then  c := c + 1;  j := j div 2;  end;  if (c = 1) then  sum := sum + 1;  j = i mod 2 = 1 jika bernilai benar maka c ditambah 1  kemudian j di div dan hasil j di mod 2 = 1 jika salah lanjut ke proses menghitung sum jika c = 1 maka sum ditambah 1  perhitungan  - i=2  2 mod 2 = 1 maka c = 0, j = 1  1 mod 2 = 1 maka c = 1,  karena c = 1 maka sum = 1  - i=3  3 mod 2 = 1 maka c=1, j=1  1 mod 2 = 1 maka c=2,  karena c = 2 maka sum = 1  - i=4  4 mod 2 = 1 maka c=0, j=2  2 mod 2 = 1 maka c=0, j=1  1 mod 2 = 1 maka c=1,  karena c = 1 maka sum = 2  - i=5  5 mod 2 = 1 maka c=1, j=2  2 mod 2 = 1 maka c=0, j=1  1 mod 2 = 1 maka c=2,  karena c = 2 maka sum = 2  - i=6  6 mod 2 = 1 maka c=0, j=3  3 mod 2 = 1 maka c=1, j=1  1 mod 2 = 1 maka c=2,  karena c = 2 maka sum = 2  - i=7  7 mod 2 = 1 maka c=1, j=3  3 mod 2 = 1 maka c=2, j=1  1 mod 2 = 1 maka c=3,  karena c = 3 maka sum = 2  - i=8  8 mod 2 = 1 maka c=0, j=4  4 mod 2 = 1 maka c=0, j=2  2 mod 2 = 1 maka c=0, j=1  1 mod 2 = 1 maka c=1,  karena c = 1 maka sum = 3  - i=9  9 mod 2 = 1 maka c=1, j=4  4 mod 2 = 1 maka c=0, j=2  2 mod 2 = 1 maka c=0, j=1  1 mod 2 = 1 maka c=2,  karena c = 2 maka sum = 3  - i=10  10 mod 2 = 1 maka c=0, j=5  5 mod 2 = 1 maka c=1, j=2  2 mod 2 = 1 maka c=0, j=1  1 mod 2 = 1 maka c=2,  karena c = 2 maka sum = 2  program ini terus berulang sampai i = 2013 dan dalam perhitungan c = 1 maka sum ditambah 1 dari semua perulangan terdapat 10 kali c bernilai 1 jadi sum = 10 |

1. No.47

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| --- |
| Berapakah bilangan yang tercetak dilayar jika dilakukan pemanggilan f(15,97,0)? |
| procedure f(x: longint; y: longint; z: longint);  begin  if (y = 0) then  writeln(z)  else  begin  if (y mod 2 = 1) then  z := z + x;  f(2\*x, y div 2, z)  end;  end; |
| Kode Program Dimodifikasi : *(Hasil Modifikasi Diwarnai)* |
| Var  y,z,x : integer;  procedure f(x: longint; y: longint; z: longint);  begin  if (y = 0) then  writeln(z)  else  begin  if (y mod 2 = 1) then  z := z + x;  f(2\*x, y div 2, z)  end;  end;  begin  x:=15; y:=97; z:=0;  f(x,y,z);  readln;  end. |
| Output Dari Kode Program Yang Dimodifikasi : |
| f(15,97,0)  f(30,48,15)  f(60,4,0)  f(120,12,0)  f(240,6,0)  f(480,3,0)  f(960,1,495)  f(1920,0,1455)  a = 1455 |

1. No.48

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| --- |
| Berapakah nilai yang dihasilkan dari pemanggilan fungsi flip(4,7)? |
| function flop(a,b:longint):longint;  forward;  function flip(a,b:longint):longint;  begin  if (a = 0) then  flip:=0  else  flip:=a+flop(a-1,b);  end;  function flop(a,b:longint):longint;  begin  if (b = 0) then  flop:=0  else  flop:=b+flip(a,b-1);  end; |
| Kode Program Dimodifikasi : *(Hasil Modifikasi Diwarnai)* |
| uses crt;  function flop(a,b:longint):longint;  forward;  function flip(a,b:longint):longint;  begin  if (a = 0) then  flip:=0  else  flip:=a+flop(a-1,b);  end;  function flop(a,b:longint):longint;  begin  if (b = 0) then  flop:=0  else  flop:=b+flip(a,b-1);  end;  var  x,y : integer;  begin  readln(x,y);  write(flip(x,y));  readln;  end. |
| Output Dari Kode Program Yang Dimodifikasi : |
| pemanggilan fungsi flip(4,7)  flip:=4+flop(3,7)  a+b=11 flop:=7+flip(3,6)  11+3 =14 flip:=14+flop(2,6)  14+6 =20 flop:=20+flip(2,5)  20+2 =22 flip:=22+flop(1,5)  22+5 =27 flop:=27+flip(1,4)  27+1 =28 flip:=28+flop(0,4)  28+4 =32 flop:=32+flip(0,3)  Flip = 32 |

1. No.49

|  |
| --- |
| Berapakah nilai yang dihasilkan dari pemanggilan fungsi flop(100,200)? |
| function flop(a,b:longint):longint;  forward;  function flip(a,b:longint):longint;  begin  if (a = 0) then  flip:=0  else  flip:=a+flop(a-1,b);  end;  function flop(a,b:longint):longint;  begin  if (b = 0) then  flop:=0  else  flop:=b+flip(a,b-1);  end; |
| Kode Program Dimodifikasi : *(Hasil Modifikasi Diwarnai)* |
| uses crt;  function flop(a,b:longint):longint;  forward;  function flip(a,b:longint):longint;  begin  if (a = 0) then  flip:=0  else  flip:=a+flop(a-1,b);  end;  function flop(a,b:longint):longint;  begin  if (b = 0) then  flop:=0  else  flop:=b+flip(a,b-1);  end;  var  x,y : integer;  begin  readln(x,y);  write(flip(x,y));  readln;  end. |
| Output Dari Kode Program Yang Dimodifikasi : |
| pemanggilan fungsi flip (100,200)  sama dengan perhitungan no.48 yakni fungsi flip akan terus dihitung sampai flip a=100 bernilai 0 sehingga program akan berhenti jadi hasil akhirnya pemanggilan fungsi flip(100,200) bernilai 20100 |