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| Nama | M.Wisnu.Aji.P |
| NIM | C1A160047 |
| OSP | 2016 |

1. No.26

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| Kode Program Dalam Soal : *(Soal Dirapikan)* |
| const  MAXS = 10;  var  i, n : integer;  A : array[1..10] of integer;  procedure klik();  begin  i := i-1;  end;  function klek(x : integer) : integer;  begin  if(x = MAXS) then  klek := A[x] \* A[1]  else  klek := A[x] \* A[x+1];  end;  function klok() : integer;  var  tmp : integer;  begin  if(i = 0) then  klok := i  else  begin  tmp := i;  klik();  klok := klok() + klek(tmp);  end;  end;  begin  A[1] := 1;  A[2] := 2;  A[3] := 3;  A[4] := 4;  A[5] := 5;  A[6] := 6;  A[10] := 11;  A[9] := 9;  A[7] := 8;  A[8]:=7;  read(n);  i := n;  writeln(klok());  end. |
| Kode Program Dimodifikasi : *(Hasil Modifikasi Diwarnai)* |
| Program Osp\_16\_26;  Uses crt ;  const  MAXS = 10;  var  i, n : integer;  A : array[1..10] of integer;  klk : integer;  procedure klik();  begin  i := i-1;  writeln(' klik:i = ',i,' ');  end;  function klek(x : integer) : integer;  begin  if(x = MAXS) then  klek := A[x] \* A[1]  else  klek := A[x] \* A[x+1];  write(' klek : ',klek,' ');  end;  function klok() : integer;  var  tmp : integer;  begin  if(i = 0) then  begin  writeln(' Posisi dibalik : ');  klok := i;  write(' klok:',klok,' + ');  end  else  begin  tmp := i;  write(' klok:tmp=',tmp,' ');  klik();  writeln;  klok := klok() + klek(tmp);  write(' = Isi klok:',klok,' + ');  end;  end;  begin  A[1] := 1; A[2] := 2;  A[3] := 3; A[4] := 4;  A[5] := 5; A[6] := 6;  A[10] := 11; A[9] := 9;  A[7] := 8; A[8] := 7;  writeln(' Array A berisi : ');  for i:=1 to 10 do  write(A[i],' ');  writeln;  writeln;  n := 6;  i := n;  klok();  //writeln (klok());  readln;  end. |
| Output Dari Kode Program Yang Dimodifikasi : |
| Isi Array A :  1 2 3 4 5 6 8 7 9 11  klok:tmp=6 klik:i=5  klok:tmp=5 klik:i=4  klok:tmp=4 klik:i=3  klok:tmp=3 klik:i=2  klok:tmp=2 klik:i=1  klok:tmp=1 klik:i=0  Rekrusif Balik :  klok:0 + klek:2 = klok:2 + klek:6 = klok:8 + klek:12 = klok:20 + klek:20 = klok:40 + klek:30 = klok:70 + klek:48 = klok:118 + |

1. No.27

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| Kode Program Dalam Soal : *(Soal Dirapikan)* |
| function Proses(x : integer) : integer;  begin  if(x <= 1) then  Proses := x  else  Proses := Proses(x div 2 \* x mod 2) + Proses(x div 2 + x mod 2);  end; |
| Kode Program Dimodifikasi : *(Hasil Modifikasi Diwarnai)* |
| Program Osp\_16\_27;  Uses crt;  Var  Pr\_0,Pr\_1,Pr\_2,Pr\_3: boolean;  function Proses(x : integer) : integer;  var  hsl\_div : integer;  hsl\_mod : integer;  hsl\_kali : integer;  hsl\_tmbh : integer;  begin  if(x <= 1) then  begin  Proses := x;  if( (not Pr\_0) or (not Pr\_1) )then  begin  writeln('Proses(',x,')=',x);  if(not Pr\_0)then  Pr\_0:=x=0;  if(not Pr\_1)then  Pr\_1:=x=1;  end;  end  else  begin  hsl\_div := x div 2;  hsl\_mod := x mod 2;  hsl\_kali := hsl\_div\*hsl\_mod;  hsl\_tmbh := hsl\_div+hsl\_mod;  Proses := Proses(hsl\_kali) + Proses(hsl\_tmbh);  if(((not Pr\_2) or (not Pr\_3)) or (x>3)) then  begin  writeln('Proses(',x,')= Proses(',hsl\_kali,') + Proses(',hsl\_tmbh,') = ',proses);  if(not Pr\_2)then  Pr\_2:=x=2;  if(not Pr\_3)then  Pr\_3:=x=3;  end;  end;  end;  begin  Pr\_0:=false;  Pr\_1:=false;  Pr\_2:=false;  Pr\_3:=false;  Proses(11);  end. |
| Output Dari Kode Program Yang Dimodifikasi : |
| Proses(0)=0  Proses(1)=1  Proses(2)= Proses(0) + Proses(1) = 1  Proses(2)= Proses(0) + Proses(1) = 1  Proses(3)= Proses(1) + Proses(2) = 2  Proses(5)= Proses(2) + Proses(3) = 3  Proses(6)= Proses(0) + Proses(3) = 2  Proses(11)= Proses(5) + Proses(6) = 5 |

1. No 28

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| Kode Program Dalam Soal : *(Soal Dirapikan)* |
| //selalu dirapihkan kodenya  function noan(n : integer) : integer;  begin  if(n < 4) then  noan := n  else  noan := noan(n-1) + noan(n-2) + noan(n-4);  end; |
| Kode Program Dimodifikasi : *(Hasil Modifikasi Diwarnai)* |
| //selalu dirapihkan kodenya  uses crt;  var  a: integer;    function noan(n : integer) : integer;  var  n1,n2,n3 : integer;  begin  if(n < 4) then  noan := n  else  begin  n1:=n-1;  n2:=n-2;  n3:=n-4;  noan := noan(n1) + noan (n2) + noan (n3);  writeln('noan = noan(',n1,') + noan(',n2,') + noan (',noan,') ');  end;  end;  begin  a := noan(8);  writeln(a);  readln();  end. |
| Output Dari Kode Program Yang Dimodifikasi : |
| //noan(1) = ? noan(2) = ? noan(3) = ? lihat contoh laporan osp 2016 no 27  noan = noan(3) + noan(2) + noan (5)  noan = noan(4) + noan(3) + noan (9)  noan = noan(3) + noan(2) + noan (5)  noan = noan(5) + noan(4) + noan (16)  noan = noan(3) + noan(2) + noan (5)  noan = noan(4) + noan(3) + noan (9)  noan = noan(6) + noan(5) + noan (28)  noan = noan(3) + noan(2) + noan (5)  noan = noan(4) + noan(3) + noan (9)  noan = noan(3) + noan(2) + noan (5)  noan = noan(5) + noan(4) + noan (16)  noan = noan(3) + noan(2) + noan (5)  noan = noan(7) + noan(6) + noan (49)  49 |

1. No 29

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| Kode Program Dalam Soal : *(Soal Dirapikan)* |
| //selalu dirapihkan kodenya  var  ar : array[1..10] of integer = (1,6,2,3,4,7,2,4,2,1);  procedure mantaps(n : integer);  var  i : integer;  iNi : integer;  temp : integer;  begin  if(n > 1) then  begin  iNi := n;  for i := 1 to n-1 do  begin  if(ar[i] < ar[iNi])then  iNi := i;  end;  temp := ar[n];  ar[n] := ar[iNi];  ar[iNi] := temp;  mantaps(n-1);  end;  end; |
| Kode Program Dimodifikasi : *(Hasil Modifikasi Diwarnai)* |
| Program OS\_16\_29;  uses crt;  var  ar : array[1..10] of integer;// = (1,6,2,3,4,7,2,4,2,1);  procedure mantaps(n : integer);  var  i,j : integer;  iNi : integer;  temp : integer;  begin  if(n > 1) then  begin  iNi := n;  write(iNi,' ');  for i := 1 to n-1 do  begin  if(ar[i] < ar[iNi])  then iNi := i;  end;  write(iNi,' ');  temp := ar[n];  ar[n] := ar[iNi];  ar[iNi] := temp;  for j:=1 to 10 do  write(ar[j],' ');  writeln;  mantaps(n-1);  end;  end;  var  i:integer;  begin  ar[1] := 1;  ar[2] := 6;  ar[3] := 2;  ar[4] := 3;  ar[5] := 4;  ar[6] := 7;  ar[7] := 2;  ar[8] := 4;  ar[9] := 2;  ar[10]:= 1;  writeln('Isi ar sebelum mantaps : ');  for i:=1 to 10 do  write(ar[i],' ');  writeln;  writeln('Isi ar dalam mantaps : ');  writeln('ini ini ar ');  mantaps(5);  writeln;  writeln('Isi ar setelah mantaps : ');  for i:=1 to 10 do  write(ar[i],' ');  readln();  end. |
| Output Dari Kode Program Yang Dimodifikasi : |
| Isi ar sebelum mantaps :  1 6 2 3 4 7 2 4 2 1  Isi ar dalam mantaps :  ini ini ar  5 1 4 6 2 3 1 7 2 4 2 1  4 3 4 6 3 2 1 7 2 4 2 1  3 3 4 6 3 2 1 7 2 4 2 1  2 1 6 4 3 2 1 7 2 4 2 1  Isi ar setelah mantaps :  6 4 3 2 1 7 2 4 2 1 |

1. NO 30

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| Kode Program Dalam Soal : *(Soal Dirapikan)* |
| //selalu dirapihkan kodenya  Var  x,y: integer;  begin  x := 1;  y := 0;  while(x <= 10) do  begin  y := y + x;  x := x + x;  end;  writeln(y);  end. |
| Kode Program Dimodifikasi : *(Hasil Modifikasi Diwarnai)* |
| Program OSP\_16\_30;  Uses crt;  var  x,y: integer;  begin  x := 1;  y := 0;  while(x <= 10) do  begin  y := y + x;  writeln('penjumlahan ',y,' + ',x,' =',y);  x := x + x;  writeln('penjumlahan ',x,' + ',y,' =',x); // ? hati2 cermat dalam mengerjakan  end;  writeln('y:= ',y,' + ',x,' = ',y);  writeln;  writeln(y);  readln();  end. |
| Output Dari Kode Program Yang Dimodifikasi : |
| penjumlahan 1 + 1 =1 // 1 + 1 = 1 ? salah ya ?  penjumlahan 2 + 1 =2  penjumlahan 3 + 2 =3  penjumlahan 4 + 3 =4  penjumlahan 7 + 4 =7  penjumlahan 8 + 7 =8  penjumlahan 15 + 8 =15  penjumlahan 16 + 15 =16  y:= 15 + 16 = 15  15 |

1. Soal no 31

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| Kode Program Dalam Soal : *(Soal Dirapikan)* |
| var  ar : array[1..10] of integer = (4, 5, 10, 5, 51, 33, 49, 64, 2, 7);  a, b, c, i : integer;  begin  a := -1;  for i := 1 to 10 do  begin  if a = -1  then a := i  else if ar[i] > ar[a]  then a := i;  end;  b := -1;  for i := 1 to 10 do  begin  if i <> a then  begin  if b = -1 then  b := i  else  if ar[i] > ar[b]  then b := i;  end;  end;  c := -1;  for i := 1 to 10 do  begin  if (i <> a) and (i <> b) then  begin  if c = -1  then c := i  else  if ar[i] > ar[c]  then c := i;  end;  end;  writeln(a, ' ', b, ' ', c);  end. |
| Kode Program Dimodifikasi : *(Hasil Modifikasi Diwarnai)* |
| //rapihkan kodenya  //keluarkan array nya untuk setiap looping  Program OSP\_16\_31;  Uses crt;  var  a,i,b,c : integer;  ar : array[1..10] of integer ;  begin  ar[1] := 4;  ar[2] := 5;  ar[3] := 10;  ar[4] := 5;  ar[5] := 51;  ar[6] := 33;  ar[7] := 49;  ar[8] := 64;  ar[9] := 2;  ar[10]:= 7;  a := -1;  writeln;  writeln('nilai awal a adalah : ',a);  writeln;  for i := 1 to 10 do  begin  write(' (',ar[a],' = ',a,') ');  if a = -1 then  a := i  else  if ar[i] > ar[a]  then a := i;  end;  writeln;  writeln;  //writeln('isi a sesudah diubah ',ar[a],' = ',a);  writeln(' isi a sesudah diubah ');  writeln;  writeln(' a = ',a,' ar[a] = ',ar[a]);  writeln('==========================================');  b := -1;  writeln;  writeln(' nilai awal b adalah : ',b);  writeln;  for i := 1 to 10 do  begin  write;  write(' (',ar[b],' = ',b,') ');  write;  if i <> a then  begin  if b = -1  then b := i  else  if ar[i] > ar[b]  then b := i;  end;  end;  writeln;  writeln;  //writeln('isi b sesudah diubah = ',ar[b],' = ',b);  writeln(' isi b sesudah diubah ');  writeln;  writeln(' b = ',b,' ar[b] = ',ar[b]);  writeln;  writeln('==========================================');  writeln;  writeln(' nilai awal c adalah : ',c);  writeln;  for i := 1 to 10 do  begin  if (i <> a) and (i <> b) then  begin  write(' (',ar[c],' = ',c,') ');  if c = -1  then c := i  else  if ar[i] > ar[c]  then c := i;  end;  end;  writeln;  writeln;  //writeln('isi c sesudah diubah = ',ar[c],' = ',c);  writeln(' isi c sesudah diubah ');  writeln;  writeln(' c = ',c,' ar[c] = ',ar[c]);  writeln('==========================================');  writeln;  writeln(' ',a, ' ', b, ' ', c);  readln();  end. |
| Output Dari Kode Program Yang Dimodifikasi : |
| //keluarkan array nya untuk setiap iterasi  nilai awal a adalah : -1  (0 = -1) (4 = 1) (5 = 2) (10 = 3) (10 = 3) (51 = 5) (51 = 5) (51 = 5) (64 = 8) (64 = 8)  isi a sesudah diubah  a = 8 ar[a] = 64  ==========================================  nilai awal b adalah : -1  (-1 = -1) (4 = 1) (5 = 2) (10 = 3) (10 = 3) (51 = 5) (51 = 5) (51 = 5) (51 = 5) (51 = 5)  isi b sesudah diubah  b = 5 ar[b] = 51  ==========================================  nilai awal c adalah : 0  (0 = 0) (4 = 1) (5 = 2) (10 = 3) (10 = 3) (33 = 6) (49 = 7) (49 = 7)  isi c sesudah diubah  c = 7 ar[c] = 49  ==========================================  8 5 7 |

1. No 32

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| Kode Program Dalam Soal : *(Soal Dirapikan)* |
| //rapihkan kodenya  function meong(x: longint):integer;  begin  if (x = 0)  then meong := 0  else  if (x mod 2 = 1) and ((x div 2) mod 2 = 1)  then meong := meong((x div 2) div 2) + 1  else  meong := meong(x + 1) + 1;  end;  begin  writeln(meong(888));  end. |
| Kode Program Dimodifikasi : *(Hasil Modifikasi Diwarnai)* |
| //rapihkan kodenya  //ini rekrusif lihat contoh osp 2016 no 27  Program OSP\_26\_32;  uses crt;  var  a\_d : integer;  // a\_t : integer;  b : integer;  function meong(x: longint):integer;  begin  if (x = 0)  then meong := 0  else  begin  if  //begin  (x mod 2 = 1) and ((x div 2) mod 2 = 1)then  meong := meong((x div 2) div 2)+1  //end  else  begin  meong := meong(x + 1) + 1;  a\_d := meong((x div 2) div 2)+1;  //a\_t := meong + a\_d;  //writeln(a\_d);  writeln(' meong = ',meong,'( ',x mod 2 = 1,' ',x,' = x div 2 = ',((x div 2) mod 2 = 1) );  writeln;  writeln('isi meong (',a\_d,') ');  //writeln('jumlah = ',a\_t);  writeln;  end  end;  end;  begin  writeln;  b := meong (888);  writeln('meong (888) = ',b);  //writeln(meong(888);  readln;  end. |
| Output Dari Kode Program Yang Dimodifikasi : |
| //ini rekrusif lihat contoh osp 2016 no 27  meong = 3( FALSE 14 = x div 2 = TRUE  isi meong (2)  meong = 4( TRUE 13 = x div 2 = FALSE  isi meong (2)  meong = 3( FALSE 14 = x div 2 = TRUE  isi meong (2)  meong = 4( TRUE 13 = x div 2 = FALSE  isi meong (2)  meong = 7( FALSE 222 = x div 2 = TRUE  isi meong (6)  meong = 3( FALSE 14 = x div 2 = TRUE  isi meong (2)  meong = 4( TRUE 13 = x div 2 = FALSE  isi meong (2)  meong = 3( FALSE 14 = x div 2 = TRUE  isi meong (2)  meong = 4( TRUE 13 = x div 2 = FALSE  isi meong (2)  meong = 7( FALSE 222 = x div 2 = TRUE  isi meong (6)  meong = 9( FALSE 890 = x div 2 = TRUE  isi meong (8)  meong = 3( FALSE 14 = x div 2 = TRUE  isi meong (2)  meong = 4( TRUE 13 = x div 2 = FALSE  isi meong (2)  meong = 3( FALSE 14 = x div 2 = TRUE  isi meong (2)  meong = 4( TRUE 13 = x div 2 = FALSE  isi meong (2)  meong = 7( FALSE 222 = x div 2 = TRUE  isi meong (6)  meong = 10( TRUE 889 = x div 2 = FALSE  isi meong (8)  meong = 3( FALSE 14 = x div 2 = TRUE  isi meong (2)  meong = 4( TRUE 13 = x div 2 = FALSE  isi meong (2)  meong = 3( FALSE 14 = x div 2 = TRUE  isi meong (2)  meong = 4( TRUE 13 = x div 2 = FALSE  isi meong (2)  meong = 7( FALSE 222 = x div 2 = TRUE  isi meong (6)  meong = 11( FALSE 888 = x div 2 = FALSE  isi meong (8)  jadi asal dari meong 888 ialah dari false 888  meong (888) = 11 |

1. N0 33

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| Kode Program Dalam Soal : *(Soal Dirapikan)* |
| //rapihkan kodenya  arr: array [1..20] of integer = (303, 304, 365, 454, 487, 6, 12, 15, 78, 90, 155, 169, 183, 205, 209, 218, 5, 269, 282, 287);  function get:integer;  var  m: integer;  left, right: integer;  begin  if (arr[1] < arr[20]) then  get := 1  else  begin  left := 1;  right := 20;  while (left < right) do  begin  m := (left+right) div 2;  if (arr[1]<=arr[m])then  left := m+1  else  right := m;  end;  get := left;  end;  end; |
| Kode Program Dimodifikasi : *(Hasil Modifikasi Diwarnai)* |
| //rapihkan kodenya  //munculkan m left right arr[1] arr[m] dlm bentuk tabel lihat contoh laporan osp 2014  Program OSP\_30\_16;  Uses crt;  var  arr: array [1..20] of integer;  function get:integer;  var  m: integer;  hsl\_div : integer;  jml\_lr : integer;  left, right: integer;  begin  if (arr[1] < arr[20]) then  begin  get := 1  end  else  writeln('===================================');  begin  left := 1;  right := 20;  while (left <right)do  begin  writeln;  writeln(' left right ');  writeln(' ',left,' ',right);  m := (left+right) div 2;  hsl\_div := m;  jml\_lr := left+right;  writeln;  writeln(' m := ',jml\_lr,' div 2 = ',hsl\_div);  writeln;  if (arr[1]<=arr[m])then  left := m+1  else  right := m;  writeln;  writeln(' arr[m] = ',arr[m],' maka m = ',m);  writeln('===================================');  writeln(' arr[m] = ',arr[m],' ',', left = ',left,', right = ',right);  end;  get := right;  writeln();  writeln('jadi get = ',get);  end;  end;  begin  arr[1] := 303; arr[11]:= 155;  arr[2] := 304; arr[12]:= 169;  arr[3] := 365; arr[13]:= 183;  arr[4] := 454; arr[14]:= 205;  arr[5] := 487; arr[15]:= 209;  arr[6] := 6; arr[16]:= 218;  arr[7] := 12; arr[17]:= 5;  arr[8] := 15; arr[18]:= 269;  arr[9] := 78; arr[19]:= 282;  arr[10]:= 90; arr[20]:= 287;  writeln(get);  readln();  end. |
| Output Dari Kode Program Yang Dimodifikasi : |
| //munculkan m left right arr[1] arr[m] dlm bentuk tabel lihat contoh laporan osp 2014  ===================================  left right  1 20  m := 21 div 2 = 10  arr[m] = 90 maka m = 10  ===================================  arr[m] = 90 , left = 1, right = 10  left right  1 10  m := 11 div 2 = 5  arr[m] = 487 maka m = 5  ===================================  arr[m] = 487 , left = 6, right = 10  left right  6 10  m := 16 div 2 = 8  arr[m] = 15 maka m = 8  ===================================  arr[m] = 15 , left = 6, right = 8  left right  6 8  m := 14 div 2 = 7  arr[m] = 12 maka m = 7  ===================================  arr[m] = 12 , left = 6, right = 7  left right  6 7  m := 13 div 2 = 6  arr[m] = 6 maka m = 6  ===================================  arr[m] = 6 , left = 6, right = 6  jadi get = 6  6 |

1. Soal no 34

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| Kode Program Dalam Soal : *(Soal Dirapikan)* |
| //rapihkan kodenya  Var  isi : array[1..10] of integer = (-4,1,7,9,0,1,2,4,3,-1);  function X(l, r, v : integer) : longint;  var  temp : integer;  begin  if(l = r)  then X := isi[l]  else  begin  temp := (l + r) div 2;  if(isi[temp] > v)  then  begin  X := X(l, temp, v); end else  X := X(temp + 1, r, v);  end;  end; |
| Kode Program Dimodifikasi : *(Hasil Modifikasi Diwarnai)* |
| //rapihkan kodenya  //ini rekrusif lihat contoh osp 2016 no 27  Program OSP\_16\_32;  Uses crt; |
| Output Dari Kode Program Yang Dimodifikasi : |
| //ini rekrusif lihat contoh osp 2016 no 27  Bs [] |

1. No 35

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| Kode Program Dalam Soal : *(Soal Dirapikan)* |
| Var  isi : array[1..10] of integer = (-4,1,7,9,0,1,2,4,3,-1);  function X(l, r, v : integer) : longint;  var  temp : integer;  begin  if(l = r)  then X := isi[l]  else  begin  temp := (l + r) div 2;  if(isi[temp] > v)  then  begin  X := X(l, temp, v); end else  X := X(temp + 1, r, v);  end;  end; |
| Kode Program Dimodifikasi : *(Hasil Modifikasi Diwarnai)* |
| Program OSP\_16\_32;  Uses crt; |
| Output Dari Kode Program Yang Dimodifikasi : |
| Bs [] |

1. Soal no 36

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| Kode Program Dalam Soal : *(Soal Dirapikan)* |
| Var  ar : array[1..1000]  of Boolean;  i,j : integer;  begin  for i := 1 to 1000 do  ar[i] := false;  for i := 1 to 1000 do  begin j := i;  while(j <= 1000) do  begin ar[j] := not(ar[j]);  j := j + i;  end;  end;  readln();  end. |
| Kode Program Dimodifikasi : *(Hasil Modifikasi Diwarnai)* |
| Program OSP\_16\_32;  Uses crt; |
| Output Dari Kode Program Yang Dimodifikasi : |
| Bs [] |

1. No 37

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| Kode Program Dalam Soal : *(Soal Dirapikan)* |
| var  daebak : array [0..2015] of char;  w, x, y, z, i : integer;  procedure saranghae(x : integer; len : integer);  var  i : integer; store : char;  begin  store := daebak[x];  for i := len-1 downto 0 do  begin  if (i = 0) then  daebak[x+((i+1) mod len)] := store  else  daebak[x+((i+1) mod len)] := daebak[x+i];  end;  end;  procedure anyeong  (arr\_sz : integer; part\_sz :integer);  Var  i:integer;  begin  for i:= 0 to (arr\_sz div part\_sz)-1 do  begin  saranghae(i \* part\_sz, part\_sz);  end;  end;  procedure oppa (n:integer);  var  i : integer;  begin  for i := 0 to n-1 do  begin  if(i mod 4 = 0)  then daebak[i] := 'T'  else  if(i mod 4 = 1)  then daebak[i] := 'O'  else  if(i mod 4 = 2)  then daebak[i] := 'K'  else  daebak[i] := 'I';  end;  end;  begin  readln(w, x, y, z); oppa(w);  for i := 1 to x do  anyeong(y, z);  for i := 0 to w-1 do  begin  if(i mod 4 = 0) and (i <> 0) then  write(“ “);  write(daebak[i]);  end;  writeln;  end. |
| Kode Program Dimodifikasi : *(Hasil Modifikasi Diwarnai)* |
| program OSP\_16\_37;  uses crt;  var  daebak : array [0..2015] of char;  w, x, y, z, i : integer;  procedure saranghae(x : integer; len : integer);  var  i,idx,j : integer;  store : char;  begin  write(' saranghae(',x,',',len,')');  store := daebak[x];  //writeln(' store = daebak[',x,']=',store);  for i := len-1 downto 0 do  begin  //write(' i ',i);  idx:=x+((i+1) mod len);  if (i = 0) then  begin  daebak[idx]:= store;  //write(' daebak[',idx,']=store=',daebak[idx]);  for j := 0 to 16 do  write(' ',daebak[j],' ');  writeln;  end  else  begin  daebak[idx] := daebak[x+i];  //write(' daebak[',idx,']=daebak[',x+i,'] = ',daebak[idx]);  end;  //for j := 0 to 16 do  //write(' ',daebak[j],' ');  //writeln;  end;  end;  procedure anyeong(arr\_sz : integer; part\_sz :integer);  Var  i:integer;  begin  writeln('anyeong(',arr\_sz,',',part\_sz, ')');  for i:= 0 to (arr\_sz div part\_sz)-1 do  begin  //writeln(' i : ',i);  saranghae(i \* part\_sz, part\_sz);  end;  end;  procedure oppa(n:integer);  var  i,j : integer;  begin  writeln('Oppa(',n,')');  for i := 0 to n-1 do  begin  //write('i : ',i,' ');  if(i mod 4 = 0) then  daebak[i] := 'T'  else  if(i mod 4 = 1) then  daebak[i] := 'O'  else  if(i mod 4 = 2) then  daebak[i] := 'K'  else  daebak[i] := 'I';  //for j := 0 to n-1 do  //write(daebak[j],' ');  //writeln;  end;  for j := 0 to n-1 do  write(daebak[j],' ');  writeln;  end;  begin // bagian program utama  //readln(w, x, y, z);  w:=16;  x:=2;  y:=12;  z:=4;  oppa(w);  writeln;  for i := 1 to x do  begin  writeln('i : ',i);  anyeong(y, z);  end;  writeln;  for i := 0 to w-1 do  begin  if(i mod 4 = 0) and (i <> 0) then  write(' ');  write(daebak[i]);  end;  writeln;  readln();  end. |
| Output Dari Kode Program Yang Dimodifikasi : |
| Oppa(16)  T O K I T O K I T O K I T O K I  i : 1  anyeong(12,4)  saranghae(0,4) I T O K T O K I T O K I T O K I  saranghae(4,4) I T O K I T O K T O K I T O K I  saranghae(8,4) I T O K I T O K I T O K T O K I  i : 2  anyeong(12,4)  saranghae(0,4) K I T O I T O K I T O K T O K I  saranghae(4,4) K I T O K I T O I T O K T O K I  saranghae(8,4) K I T O K I T O K I T O T O K I  KITO KITO KITO TOKI |

1. No 38

|  |
| --- |
| Kode Program Dalam Soal : *(Soal Dirapikan)* |
| var  daebak : array [0..2015] of char;  w, x, y, z, i : integer;  procedure saranghae(x : integer; len : integer);  var  i : integer; store : char;  begin  store := daebak[x];  for i := len-1 downto 0 do  begin  if (i = 0) then  daebak[x+((i+1) mod len)] := store  else  daebak[x+((i+1) mod len)] := daebak[x+i];  end;  end;  procedure anyeong  (arr\_sz : integer; part\_sz :integer);  Var  i:integer;  begin  for i:= 0 to (arr\_sz div part\_sz)-1 do  begin  saranghae(i \* part\_sz, part\_sz);  end;  end;  procedure oppa (n:integer);  var  i : integer;  begin  for i := 0 to n-1 do  begin  if(i mod 4 = 0)  then daebak[i] := 'T'  else  if(i mod 4 = 1)  then daebak[i] := 'O'  else  if(i mod 4 = 2)  then daebak[i] := 'K'  else  daebak[i] := 'I';  end;  end;  begin  readln(w, x, y, z); oppa(w);  for i := 1 to x do  anyeong(y, z);  for i := 0 to w-1 do  begin  if(i mod 4 = 0) and (i <> 0) then  write(“ “);  write(daebak[i]);  end;  writeln;  end. |
| Kode Program Dimodifikasi : *(Hasil Modifikasi Diwarnai)* |
| program OSP\_16\_38;  uses crt;  var  daebak : array [0..2015] of char;  w, x, y, z, i : integer;  procedure saranghae(x : integer; len : integer);  var  i,idx,j : integer;  store : char;  begin  write(' saranghae(',x,',',len,')');  store := daebak[x];  //writeln(' store = daebak[',x,']=',store);  for i := len-1 downto 0 do  begin  //write(' i ',i);  idx:=x+((i+1) mod len);  if (i = 0) then  begin  daebak[idx]:= store;  //write(' daebak[',idx,']=store=',daebak[idx]);  for j := 0 to 16 do  write(' ',daebak[j],' ');  writeln;  end  else  begin  daebak[idx] := daebak[x+i];  //write(' daebak[',idx,']=daebak[',x+i,'] = ',daebak[idx]);  end;  //for j := 0 to 16 do  //write(' ',daebak[j],' ');  //writeln;  end;  end;  procedure anyeong(arr\_sz : integer; part\_sz :integer);  Var  i:integer;  begin  writeln('anyeong(',arr\_sz,',',part\_sz, ')');  for i:= 0 to (arr\_sz div part\_sz)-1 do  begin  //writeln(' i : ',i);  saranghae(i \* part\_sz, part\_sz);  end;  end;  procedure oppa(n:integer);  var  i,j : integer;  begin  writeln('Oppa(',n,')');  for i := 0 to n-1 do  begin  //write('i : ',i,' ');  if(i mod 4 = 0) then  daebak[i] := 'T'  else  if(i mod 4 = 1) then  daebak[i] := 'O'  else  if(i mod 4 = 2) then  daebak[i] := 'K'  else  daebak[i] := 'I';  //for j := 0 to n-1 do  //write(daebak[j],' ');  //writeln;  end;  for j := 0 to n-1 do  write(daebak[j],' ');  writeln;  end;  begin // bagian program utama  //readln(w, x, y, z); //16 4 10 5  w:=16;  x:=4;  y:=10;  z:=5;  oppa(w);  writeln;  for i := 1 to x do  begin  writeln('i : ',i);  anyeong(y, z);  end;  writeln;  for i := 0 to w-1 do  begin  if(i mod 4 = 0) and (i <> 0) then  write(' ');  write(daebak[i]);  end;  writeln;  readln();  end. |
| Output Dari Kode Program Yang Dimodifikasi : |
| Oppa(16)  T O K I T O K I T O K I T O K I  i : 1  anyeong(10,5)  saranghae(0,5) T T O K I O K I T O K I T O K I  saranghae(5,5) T T O K I O O K I T K I T O K I  i : 2  anyeong(10,5)  saranghae(0,5) I T T O K O O K I T K I T O K I  saranghae(5,5) I T T O K T O O K I K I T O K I  i : 3  anyeong(10,5)  saranghae(0,5) K I T T O T O O K I K I T O K I  saranghae(5,5) K I T T O I T O O K K I T O K I  i : 4  anyeong(10,5)  saranghae(0,5) O K I T T I T O O K K I T O K I  saranghae(5,5) O K I T T K I T O O K I T O K I  OKIT TKIT OOKI TOKI |

1. NO 39

|  |
| --- |
| Kode Program Dalam Soal : *(Soal Dirapikan)* |
| Var  s,t : string;  x,l,r,k : byte;  temp : char;  begin  readln(s);  k := 0;  x := 0;  l := 1;  r := length(s);  t := '';  while (l <= r) do  begin  if (k mod 2) = 0 then  begin  temp := s[r];  r := r – 1;  end  else  begin  temp := s[l];  l := l + 1;  end;  k := k + 1;  //ord(c) adalah fungsi untuk mengubah  //karakter c menjadi nilai pada ASCII  //ord('A') = 65  //ord('B') = 66  //...  //ord('Z') = 90  x := (x + ord(temp) - ord('A')) mod 26;  t := t + chr(x + ord('A'));  end;  writeln(t);  end;  end. |
| Kode Program Dimodifikasi : *(Hasil Modifikasi Diwarnai)* |
| Program Osp\_16\_39;  Uses crt;  Var  s,t,i,tt,f : string;  x,l,r,k,z : byte;  temp :char;  begin  writeln(' IXYBEJVCE : no 39');  writeln;  readln(s);  k := 0;  x := 0;  l := 1;  r := length(s);  t := '';  while (l <= r) do  begin  if (k mod 2) = 0 then  begin  temp := s[r];  r := r - 1;  end  else  begin  temp := s[l];  l := l + 1;  end;  k := k + 1;  //ord(c) adalah fungsi untuk mengubah  //karakter c menjadi nilai pada ASCII  //ord('A') = 65  //ord('B') = 66  //...  //ord('Z') = 90  x := (x + ord(temp) - ord('A')) mod 26;  writeln('====');  tt := t + chr(x + ord('A'));  t := t + chr(x + ord('A'));  writeln(x,' + ',ord(temp),' - ',ord('A'),' = ',x,' = ',tt);  //writeln('====');  //writeln(x,' = ',tt);  end;  writeln(t);  writeln;  readln();  end. |
| Output Dari Kode Program Yang Dimodifikasi : |
| IXYBEJVCE : no 39  IXYBEJVCE  ====  4 + 69 - 65 = 4 = E  ====  12 + 73 - 65 = 12 = EM  ====  14 + 67 - 65 = 14 = EMO  ====  11 + 88 - 65 = 11 = EMOL  ====  6 + 86 - 65 = 6 = EMOLG  ====  4 + 89 - 65 = 4 = EMOLGE  ====  13 + 74 - 65 = 13 = EMOLGEN  ====  14 + 66 - 65 = 14 = EMOLGENO  ====  18 + 69 - 65 = 18 = EMOLGENOS  EMOLGENOS |

1. No 40

|  |
| --- |
| Kode Program Dalam Soal : *(Soal Dirapikan)* |
| Var  s,t : string;  x,l,r,k : byte;  temp : char;  begin  readln(s);  k := 0;  x := 0;  l := 1;  r := length(s);  t := '';  while (l <= r) do  begin  if (k mod 2) = 0 then  begin  temp := s[r];  r := r – 1;  end  else  begin  temp := s[l];  l := l + 1;  end;  k := k + 1;  //ord(c) adalah fungsi untuk mengubah  //karakter c menjadi nilai pada ASCII  //ord('A') = 65  //ord('B') = 66  //...  //ord('Z') = 90  x := (x + ord(temp) - ord('A')) mod 26;  t := t + chr(x + ord('A'));  end;  writeln(t);  end;  end. |
| Kode Program Dimodifikasi : *(Hasil Modifikasi Diwarnai)* |
| Program Osp\_16\_40;  Uses crt;  Var  s,t,i,tt,f : string;  x,l,r,k,z : byte;  temp :char;  begin  writeln(' “RJJJVDPII : no 40');  writeln;  readln(s);  k := 0;  x := 0;  l := 1;  r := length(s);  t := '';  while (l <= r) do  begin  if (k mod 2) = 0 then  begin  temp := s[r];  r := r - 1;  end  else  begin  temp := s[l];  l := l + 1;  end;  k := k + 1;  //ord(c) adalah fungsi untuk mengubah  //karakter c menjadi nilai pada ASCII  //ord('A') = 65  //ord('B') = 66  //...  //ord('Z') = 90  x := (x + ord(temp) - ord('A')) mod 26;  writeln('====');  tt := t + chr(x + ord('A'));  t := t + chr(x + ord('A'));  writeln(x,' + ',ord(temp),' - ',ord('A'),' = ',x,' = ',tt);  //writeln('====');  //writeln(x,' = ',tt);  end;  writeln(t);  writeln;  readln();  end. |
| Output Dari Kode Program Yang Dimodifikasi : |
| RJJJVDPII : no 40  RJJJVDPII  ====  8 + 73 - 65 = 8 = I  ====  25 + 82 - 65 = 25 = IZ  ====  7 + 73 - 65 = 7 = IZH  ====  16 + 74 - 65 = 16 = IZHQ  ====  5 + 80 - 65 = 5 = IZHQF  ====  14 + 74 - 65 = 14 = IZHQFO  ====  17 + 68 - 65 = 17 = IZHQFOR  ====  0 + 74 - 65 = 0 = IZHQFORA  ====  21 + 86 - 65 = 21 = IZHQFORAV  IZHQFORAV |

1. No 41

|  |
| --- |
| Kode Program Dalam Soal : *(Soal Dirapikan)* |
| Var |
| Kode Program Dimodifikasi : *(Hasil Modifikasi Diwarnai)* |
| Program OSP\_16\_32;  Uses crt; |
| Output Dari Kode Program Yang Dimodifikasi : |
| Bs [] |

1. N0 42

|  |
| --- |
| Kode Program Dalam Soal : *(Soal Dirapikan)* |
| Var |
| Kode Program Dimodifikasi : *(Hasil Modifikasi Diwarnai)* |
| Program OSP\_16\_32;  Uses crt; |
| Output Dari Kode Program Yang Dimodifikasi : |
| Bs [] |

1. No 43

|  |
| --- |
| Kode Program Dalam Soal : *(Soal Dirapikan)* |
| Var |
| Kode Program Dimodifikasi : *(Hasil Modifikasi Diwarnai)* |
| Program OSP\_16\_32;  Uses crt; |
| Output Dari Kode Program Yang Dimodifikasi : |
| Bs [] |

1. No 44

|  |
| --- |
| Kode Program Dalam Soal : *(Soal Dirapikan)* |
| Var |
| Kode Program Dimodifikasi : *(Hasil Modifikasi Diwarnai)* |
| Program OSP\_16\_32;  Uses crt; |
| Output Dari Kode Program Yang Dimodifikasi : |
| Bs [] |

1. N0 45

|  |
| --- |
| Kode Program Dalam Soal : *(Soal Dirapikan)* |
| Var |
| Kode Program Dimodifikasi : *(Hasil Modifikasi Diwarnai)* |
| Program OSP\_16\_32;  Uses crt; |
| Output Dari Kode Program Yang Dimodifikasi : |
| Bs [] |

1. No 46

|  |
| --- |
| Kode Program Dalam Soal : *(Soal Dirapikan)* |
| Var |
| Kode Program Dimodifikasi : *(Hasil Modifikasi Diwarnai)* |
| Program OSP\_16\_32;  Uses crt; |
| Output Dari Kode Program Yang Dimodifikasi : |
| Bs [] |

1. N0 47

|  |
| --- |
| Kode Program Dalam Soal : *(Soal Dirapikan)* |
|  |
| Kode Program Dimodifikasi : *(Hasil Modifikasi Diwarnai)* |
| Program Osp\_16\_47;  Uses crt;  var  n, m, temp : int64;  a,b,c : int64;  jumlah : int64;  begin  writeln('masukkan nilai n : ');  readln(n);  writeln('masukkan nilai m : ');  readln(m);  if (n > m) then  begin  temp := n;  n := m;  m := temp;  end;  a := n+1 ;  b := 3\*m-n+1;  c := n\*a\*b;  writeln;  writeln(n,' \* ',n,' + 1 \* 3 \* ',m,' - ',n,' + 1) = ',c );  writeln;  writeln(n,' \* ',a,' \* ',b,' = ',c);  writeln;  writeln('c = ',c);  jumlah := c div 6;  writeln;  writeln('jumlah = ',120,' div 6 = ', jumlah);  writeln;  writeln('banyak persegi pada grid ',n,' x ',m,' adalah ',jumlah,' persegi');  readln();  end. |
| Output Dari Kode Program Yang Dimodifikasi : |
| masukkan nilai n :  3  masukkan nilai m :  4  3 \* 3 + 1 \* 3 \* 4 - 3 + 1) = 120  3 \* 4 \* 10 = 120  c = 120  jumlah = 120 div 6 = 20  banyak persegi pada grid 3 x 4 adalah 20 persegi |

1. No 48

|  |
| --- |
| Kode Program Dalam Soal : *(Soal Dirapikan)* |
| Var |
| Kode Program Dimodifikasi : *(Hasil Modifikasi Diwarnai)* |
| Program OSP\_16\_32;  Uses crt; |
| Output Dari Kode Program Yang Dimodifikasi : |
| Bs [] |