

L A M P I R A N



```

uses crt,tool;
const
  rwpt1 : array[1..8] of byte = (1,2,3,1,4,7,1,3);
  rwpt2 : array[1..8] of byte = (4,5,6,2,5,8,5,5);
  rwpt3 : array[1..8] of byte = (7,8,9,3,6,9,9,7);
var
  gabrd,sastat : array[1..9] of byte;
  rowsum : array[1..8] of byte;
  intel,odsk,playr : byte;
  jal_brs_ang : byte;
  pos_main,rovnum : byte;
  pos_brs_ang,i,over : byte;
  skor1,skor2 : integer;
  jal_kalah,jal_reais: byte;
  first,tobol : char;
  menang,ulang : boolean;

procedure aturan_main;
var
  menu : string;
begin
  textcolor(white);textbackground(green);
  window(2,23,79,23);clrscr;window(1,1,80,25);
  menu := ' Enter -> Cara Bermain';
  gotoxy(40-(length(menu) div 2),23);write(menu);
  textbackground(black);textcolor(white);
  window(2,2,79,22);clrscr;
  writeln(' GAMBARAN UMUM PERMAINAN :');
  writeln('-----');writeln;
  writeln('Tic-Tac-Toe dimainkan di atas papan yang dibagi menjadi 3-3 bagian kotak. ');
  writeln('Kotak-kotak tersebut nantinya akan diisi dengan simbol '0' oleh pemain dan ');
  writeln('simbol 'X' oleh komputer secara bergantian. Pemenangnya adalah yang lebih da-');
  writeln('hulu dapat menempatkan simbol-simbolnya segaris berderatan (vertikal,horizon-');
  writeln('tal,diagonal) tanpa terhalang oleh simbol lawan. ');
  writeln('Tersedia 3 tingkat permainan (level). Awal permainan diset pada level 1. Se ');
  writeln('lanjutnya akan naik/turun bila pemain menang/kalah, dan jika reais tetap. ');
  writeln('Setiap kali satu game selesai, masing-masing pemain akan diberi skor dengan ');
  writeln('ketentuan jika 'komputer melangkah lebih dulu', maka skor masing-masing akan ');
  writeln('bertambah/berturang sesuai tabel berikut :');
  writeln;
  writeln('          Menang    Reais    Kalah');
  writeln('Komputer    +2      0      -2');
  writeln('Orang       +2      +1     -1');
  writeln;
  writeln('Demikian juga sebaliknya, yaitu jika 'Orang melangkah lebih dulu');
  repeat
    tobol := readkey;
    if not(first = #27) then
      begin
        sound(1000);delay(75);nosound;
        sound(2000);delay(75);nosound;
      end;
  end;

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until tombol = #13;
window(1,1,80,25);
textcolor(white);textbackground(green);
window(2,23,79,23);clrscr;window(1,1,80,25);
menu := ' Esc -> Kembali ke Menu';
gotoxy(40-(length(menu) div 2),23);write(menu);
textbackground(black);textcolor(white);
window(2,2,79,22);clrscr;
writeln('CARA BERMAIN :');
writeln('_____');writeln;writeln;
writeln('Bermain Tic-Tac-Toe berarti anda ingin menempatkan simbol 'O' anda pada kotak');
writeln('yang anda inginkan agar anda dapat menempatkan simbol-simbol 'O' anda terse-');
writeln('but segaris berderetan (diagonal, horizontal ataupun vertikal) tanpa terhalang');
writeln('oleh simbol 'X' yang merupakan simbol komputer, sehingga anda dapat menang-');
writeln('kan permainan. Sekiranya anda tidak memiliki kesempatan untuk menang, maka ai');
writeln('nimal anda harus remis. ');
writeln('Untuk dapat menempatkan simbol 'O' anda di papan permainan, anda hanya ting-');
writeln('gal menekan angka-angka kotak sesuai yang tertera pada papan permainan. Jelas');
writeln('bahwa angka-angka yang anda pilih haruslah angka kotak yang masih kosong atau');
writeln('belum ditempati oleh simbol yang lain. ');
writeln;
writeln('Anda dapat keluar sewaktu-waktu saat anda bermain dengan menekan tombol Tab ');
repeat
  tombol := readkey;
  if not(first = #27) then
    begin
      sound(1000);delay(75);nosound;
      sound(2000);delay(75);nosound;
    end;
  until tombol = #27;
  window(1,1,80,25);
end;

procedure pilih_main;
var
  mulai : boolean;
  menu : string;
begin
  hilang_kursor;
  mulai := false;
  repeat
    textbackground(black);textcolor(green);
    clrscr;kotak(1,1,80,24);
    textbackground(blue);textcolor(yellow);
    window(5,2,75,10);clrscr;window(1,1,80,25);kotak(5,2,75,10);
    gotoxy(8,03);writeln(' ');
    gotoxy(8,04);writeln(' O |   |   '); PERMAINAN TIC-TAC-TOE');
    gotoxy(8,05);writeln('   |   |   ');
    gotoxy(8,06);writeln('   | O | X '); Programmer : ASEP DHANI');
    gotoxy(8,07);writeln('   |   |   '); Pada Bulan : Maret-Juni 1996');
    gotoxy(8,08);writeln('   | X | O '); Menggunakan : Bahasa Turbo pascal');
    gotoxy(8,09);writeln(' ');
    textcolor(white);textbackground(green);
    window(2,23,79,23);clrscr;window(1,1,80,25);
  
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menu := ' F10 -> Gambar: Uaam Permainan  End -> Keluar';
gotoxy(40-(length(menu) div 2),23);write(menu);
textbackground(red);
kotak_pesan('Siapa duluan yang aain, [K]omputer / [O]rang',15,80,0);
repeat
  first := readkey;
  if not(first in ['K','k','O','o']) then
  begin
    sound(1000);delay(75);nosound;
    sound(2000);delay(75);nosound;
  end;
until (first in ['K','k','O','o']) or (ord(first) in [68,79]);
if ord(first) = 68 then
  aturan_main
else
  if ord(first) = 79 then
    hapus_layar
  else
    mulai := true;
until mulai;
end;

procedure papan_utama;
var
  i,j : byte;
  kata : string;
begin
  textcolor(white);textbackground(black);clrscr;
  kotak(1,1,80,24);
  gotoxy(55,1);write(' ');
  for i:= 2 to 23 do
  begin
    gotoxy(55,i);write(' ');
  end;
  gotoxy(55,24);write(' ');
  textcolor(yellow);textbackground(blue);
  window(56,2,79,19);clrscr;window(1,1,80,25);
  gotoxy(56,05);write('      1 2 3      ');
  gotoxy(56,08);write('      > > >      ');
  gotoxy(56,12);write(' Komputer :      ');
  gotoxy(56,17);write(' Komputer :      ');
  gotoxy(56,13);write(' Orang   :      ');
  gotoxy(56,18);write(' Orang   :      ');
  textcolor(white);textbackground(yellow);
  gotoxy(56,02);write('      L E V E L      ');
  gotoxy(56,06);write('      KESEMPATAN      ');
  gotoxy(56,10);write('      S K O R      ');
  gotoxy(56,15);write('      GERAKAN      ');
  textcolor(yellow);textbackground(yellow);
  gotoxy(56,20);write('      Baris Perintah      ');
  textcolor(yellow);textbackground(yellow);
  window(02,02,54,02);clrscr;window(1,1,80,25);
  kata:='Simbol gerakan : X -> Komputer  O -> Orang';
  gotoxy(28-(length(kata) div 2),2);write(kata);

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window(2,18,54,18);clrscr:window(1,1,80,25);

kata:='Tab -> keluar/batal main';
gotoxy(28-(lengthkata) div 2),18);write(kata);
textcolor(white);textbackground(black);
end;

procedure papan_main;
var
  i,j : byte;
begin
  textcolor(white);textbackground(black);
  for i:=2 to 54 do
    for j:= 3 to 17 do
      begin
        gotoxy(i,j);write(' ');
      end;
  textcolor(yellow);textbackground(blue);
  gotoxy(14,04);writeln(' ');
  gotoxy(14,05);writeln(' ');
  gotoxy(14,06);writeln(' 1 2 3 ');
  gotoxy(14,07);writeln(' ');
  gotoxy(14,08);writeln(' ');
  gotoxy(14,09);writeln(' 4 5 6 ');
  gotoxy(14,10);writeln(' ');
  gotoxy(14,11);writeln(' ');
  gotoxy(14,12);writeln(' ');
  gotoxy(14,13);writeln(' 7 8 9 ');
  gotoxy(14,14);writeln(' ');
  gotoxy(14,15);writeln(' ');
  gotoxy(14,16);writeln(' ');
  textcolor(white);textbackground(black);
end;

procedure blok(kol,bar:byte; sign,kar:char; menang:boolean);
var
  i,j : byte;
begin
  for j := bar-1 to bar+1 do
    for i := kol-4 to kol+4 do
      begin
        gotoxy(i,j);write(kar);
      end;
  gotoxy(kol,bar);
  if not(menang) then
    if kar = 'X' then
      begin
        textcolor(white+blink);
        write(sign);
      end
    else
      begin
        textcolor(white);

```

1	2	3
4	5	6
7	8	9

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        write(sign);
    end
else
    write(sign);
end;

procedure tempatkan_tanda(nom:byte; sign,kar:char; win:boolean);
begin
    case nom of
        1 : blok(19,06,sign,kar,win);
        2 : blok(29,06,sign,kar,win);
        3 : blok(39,06,sign,kar,win);
        4 : blok(19,10,sign,kar,win);
        5 : blok(29,10,sign,kar,win);
        6 : blok(39,10,sign,kar,win);
        7 : blok(19,14,sign,kar,win);
        8 : blok(29,14,sign,kar,win);
        9 : blok(39,14,sign,kar,win);
    end;
end;

procedure harga_awal;
begin
    papan_utama;
    intel := 1;
    over := 3;
    skor1 := 0;
    skor2 := 0;
    jml_kalah := 0;
    jml_remis := 0;
end;

procedure hitung_skor(predikat:char);
begin
    case upcase(first) of
        'K' : begin
            case upcase(predikat) of
                'K': begin skor1 := skor1+2;
                    skor2 := skor2-1;end;
                'M': begin skor1 := skor1-2;
                    skor2 := skor2+2;end;
                'R': skor2 := skor2+1;
            end;
            textbackground(blue);textcolor(yellow);
            gotoxy(70,12);write(skori:2);
            gotoxy(70,13);write(skori2:2);
            end;
        'O' : begin
            case upcase(predikat) of
                'M': begin skor1 := skor1+2;
                    skor2 := skor2-1;end;
                'K': begin skor1 := skor1-2;
                    skor2 := skor2+2;end;
                'R': skor2 := skor2+1;
            end;
        end;
    end;
end;

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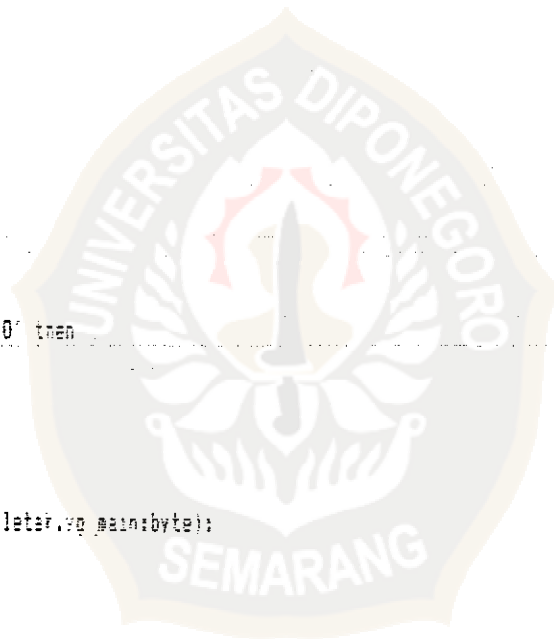
    end;
    textbackground(blue);textcolor(yellow);
    gotoxy(70,12);write( skor2:2);
    gotoxy(70,13);write( skor1:2);
    end;
end;
end;

procedure info_level;
var
    katal,kata2 : string;
begin
    textbackground(blue);textcolor(yellow);
    gotoxy(64+(2*intel-1),3);write('1');
    gotoxy(64+(2*intel-1),4);write('2');
    gotoxy(66+over,2);write(' ');
end;

procedure reset;
var
    i : byte;
begin
    hitung_skor(' ');
    movnum := 0;
    menang := false;
    for i:= 1 to 9 do
        gbrd[i] := 0;
        if upcase(first) = 'O' then
            playr := 1
        else
            playr := 0;
        end;
    end;
end;

procedure update(egval,letak,yg_main:byte);
var
    kar1,kar2 : char;
    i : byte;
begin
    gbrd[letak] := egval;
    if yg_main = 1 then
        begin
            kar1 := 'O';
            kar2 := 'X';
        end
    else
        begin
            kar1 := 'X';
            kar2 := 'O';
        end;
    end;
    textcolor(white);textbackground(blue);
    tempatkan_tanda(letak,kar1,kar2,false);
    for i:= 1 to 3 do
        begin
            rowsum[i] := gbrd[rwt1[i]]+gbrd[rwt2[i]]+gbrd[rwt3[i]];
        end;
    end;
end;

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    end;
end;

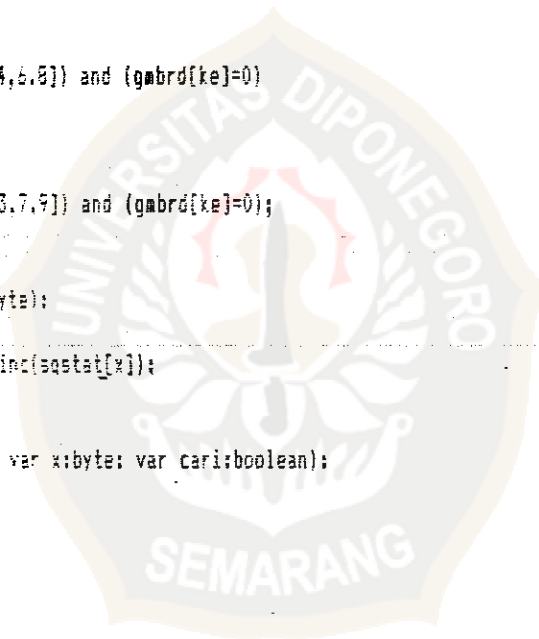
procedure no_random(var mov:byte);
begin
    randomize;
    mov := round(8*random)+1;
end;

procedure rndmv(var ke:byte; sisi:byte);
begin
    if sisi = 0 then
        repeat
            no_random(ke);
        until (gbrd[ke]=0)
    else
        if sisi = 1 then
            repeat
                no_random(ke);
            until (ke in [2,4,6,8]) and (gbrd[ke]=0)
        else
            repeat
                no_random(ke);
            until (ke in [1,3,7,9]) and (gbrd[ke]=0);
        end;
    end;

procedure count_stat(x:byte);
begin
    if gbrd[x] = 0 then inc(sqstat[x]);
end;

procedure findmv(a:byte; var x:byte; var cari:boolean);
var
    i      : byte;
    temp1,temp2 : byte;
begin
    temp1 := a;
    temp2 := x;
    for i:= 1 to 9 do
        sqstat[i] := 0;
    for i:= 1 to 8 do
        if rowsum[i] = temp1 then
            begin
                count_stat(rwpt1[i]);
                count_stat(rwpt2[i]);
                count_stat(rwpt3[i]);
            end;
        cari := false;
        i:=1;
        repeat
            if sqstat[i] >= temp2 then

```




```

begin
  cari := true;
  x := i;
end;
inc(i);
until (i = 10) or (cari);
end;

procedure analyze(var no_gerakan:byte);
var
  bil_acak : byte;
  ketemu : boolean;
begin
  oddask := 0;
  if intel = 1 then
    rndav(no_gerakan, oddask)
  else
    begin
      no_gerakan := 1;
      findav(8, no_gerakan, ketemu);
      if not(ketemu) then
        begin
          no_gerakan := 1;
          findav(2, no_gerakan, ketemu);
          if not(ketemu) then
            begin
              no_gerakan := 2;
              findav(4, no_gerakan, ketemu);
              if not(ketemu) then
                begin
                  if intel=2 then
                    rndav(no_gerakan, oddask)
                  else
                    begin
                      if movnum = 1 then
                        rndav(no_gerakan, oddask)
                      else
                        if (movnum = 4) and (rowsus[7]=6) or (rowsus[8]=6) then
                          begin
                            if gbrd[5] = 4 then oddask := 1 else oddask := 2;
                            rndav(no_gerakan, oddask);
                          end
                        else
                          begin
                            no_gerakan := 2;
                            findav(1, no_gerakan, ketemu);
                            if not(ketemu) then
                              if (movnum = 2) and (gbrd[5] = 1) then
                                begin
                                  oddask := 2;
                                  rndav(no_gerakan, oddask);
                                end
                              else
                                if gbrd[5] = 0 then

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        no_gerakan := 5
    else
        rnd#v(no_gerakan,odd#sk);
    end;
end;
end;
end;
end;
end;
end;

procedure komputer_main(var gerak:byte);
var
    kalimat : string;
begin
    kalimat := '    Tunggu Sebentar    ';
    textcolor(white+blink);textbackground(black);
    gotoxy(56,22);write(kalimat);
    delay(500);
    analyze(gerak);
    textcolor(yellow);textbackground(blue);
    gotoxy(71,17);write(gerak);
end;

procedure orang_main(var no:byte);
var
    salah : integer;
    nomor : char;
    kalimat : string;
begin
    kalimat := '    Giliran Anda    ';
    textcolor(white+blink);textbackground(black);
    gotoxy(56,22);write(kalimat);
    repeat
        nomor := readkey;
        val(nomor,no,salah);
        if (not(no in [1..9])) or (g#brd[no]<>0) then
            begin
                sound(1000);delay(75);nosound;
                sound(2000);delay(75);nosound;
            end;
        until ((no in [1..9]) and (g#brd[no]=0)) or (nomor = #09);
        if nomor = #09 then hapus_layar;
        textcolor(yellow);textbackground(blue);
        gotoxy(71,18);write(nomor);
    end;

procedure anda_kalah;
var
    kalimat : string;
begin
    textcolor(white+blink);textbackground(blue);
    tempatkan_tanda(rwpt1[pos_brs_mng], 'X', 'I', true);
    tempatkan_tanda(rwpt2[pos_brs_mng], 'X', 'I', true);

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tempatkan_tanda(rwpt3[pos_brs_mng], 'X', 'X', true);
textcolor(white+blink);textbackground(black);
kalimat := ' Tekan sembarang tombol ';
gotoxy(56,22);write(kalimat);
hitung_skor('K');
kalimat := 'Oh..Sayang Sekali, Anda KALAH';
kotak_pesan(kalimat,21,56,95);
textbackground(black);
window(2,19,54,23);clrscr;window(1,1,80,25);
textbackground(blue);
gotoxy(64+(2*intel-1),3);write(' ');
gotoxy(64+(2*intel-1),4);write(' ');
inc(jml_kalah);
textbackground(black);

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end;
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procedure anda_menang;
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var
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```
    kalimat : string;
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```
begin
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textcolor(white+blink);textbackground(blue);
tempatkan_tanda(rwpt1[pos_brs_mng], 'O', 'O', true);
tempatkan_tanda(rwpt2[pos_brs_mng], 'O', 'O', true);
tempatkan_tanda(rwpt3[pos_brs_mng], 'O', 'O', true);
textcolor(white+blink);textbackground(black);
kalimat := ' Tekan sembarang tombol ';
gotoxy(56,22);write(kalimat);
hitung_skor('M');
kalimat := 'Selamat...Anda MENANG !!';
kotak_pesan(kalimat,21,56,95);
textbackground(black);
window(2,19,54,23);clrscr;window(1,1,80,25);
textbackground(blue);
gotoxy(64+(2*intel-1),3);write(' ');
gotoxy(64+(2*intel-1),4);write(' ');

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end;
```

```
procedure remis;
```

```
var
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```
    kalimat : string;
```

```
begin
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```

hitung_skor('R');
textcolor(white+blink);textbackground(black);
kalimat := ' Tekan sembarang tombol ';
gotoxy(56,22);write(kalimat);
kalimat := 'R E M I S ...';
kotak_pesan(kalimat,21,56,95);
textbackground(black);
window(2,19,54,23);clrscr;window(1,1,80,25);
inc(jml_remis);

```

```
end;
```

```
procedure ulangi;
```

```
var
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```

    lagi : char;
    kalimat : string;
begin
    textbackground(black);
    gotoxy(56,22);write('          Pilih Y/T          ');
    kotak_pesan('GAME OVER',12,56,92);
    kalimat := 'Mau main lagi? [Y]a / [T]idak';
    kotak_pesan(kalimat,21,56,96);
    repeat
        lagi := readkey;
        if not(upcase(lagi) in ['Y','T']) then
            begin
                sound(1000);delay(75);nosound;
                sound(2000);delay(75);nosound;
            end;
        until upcase(lagi) in ['Y','T'];
        if upcase(lagi) = 'Y' then ulang := true else ulang := false;
        ada_kursor;
        textbackground(black);
    end;

    {-----PROGRAM UTAMA-----}
    begin
        repeat
            pilih_main;
            harga_awal;
            repeat
                papan_main;
                reset;
                info_level;
                repeat
                    inc(#ovnum);
                    if playr = 0 then
                        begin
                            komputer_main(pos_main);
                            update(4,pos_main,playr);
                            playr := 1;
                            jml_brs_mng := 12;
                        end
                    else
                        begin
                            orang_main(pos_main);
                            update(1,pos_main,playr);
                            playr := 0;
                            jml_brs_mng := 3;
                        end;
                until (#ovnum = 9) or (menang);
            until (#ovnum = 9) or (menang);
        end;
    end;
end;

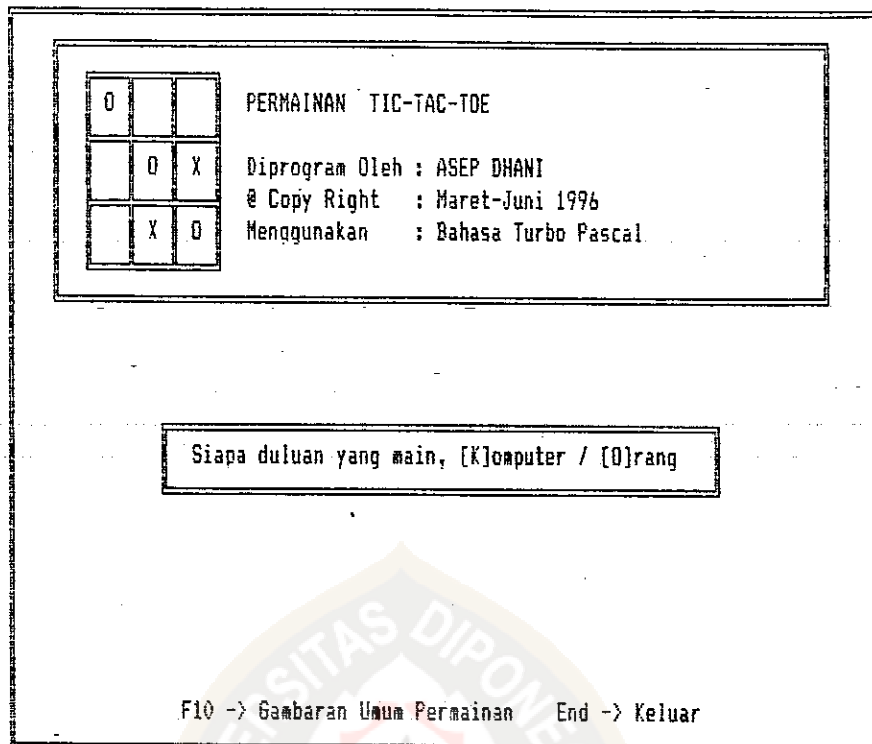
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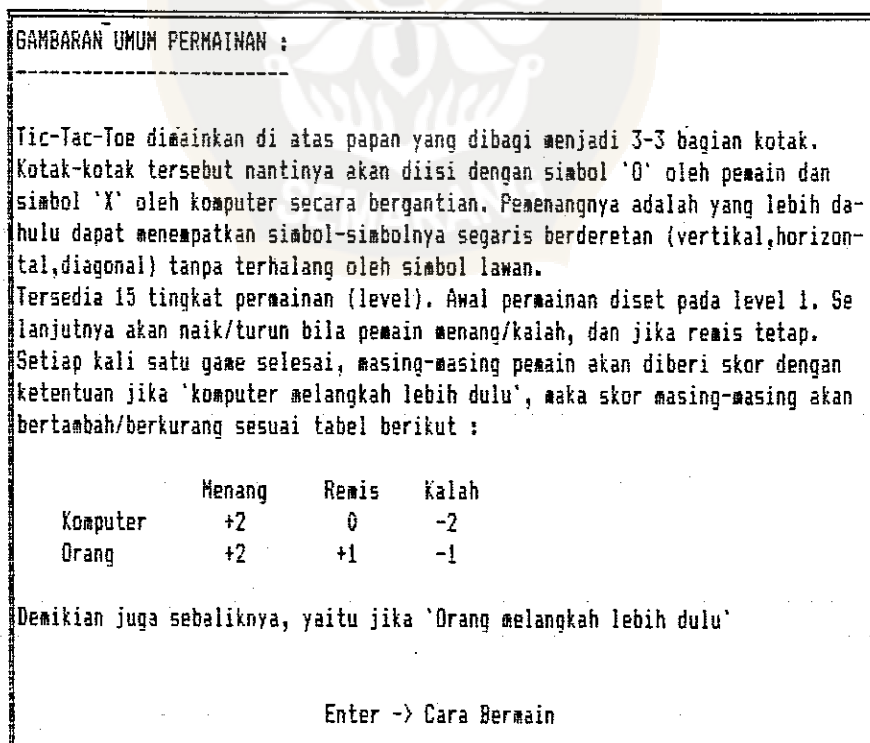
```
if menang then
begin
  if jml_brs_ang = 12 then
  begin
    anda_kalah;
    if intel <> 1 then dec(intel);
    if (jml_kalah mod 3 = 0) then dec(over);
  end
  else
  if jml_brs_ang = 3 then
  begin
    anda_menang;
    if intel <> 15 then inc(intel);
  end;
end;
else
begin
  remis;
  if (jml_remis mod 4 = 0) then dec(over);
end;
until over = 0;

info_level;
ulang;
until not(ulang);
hapus_layar;
end.
```

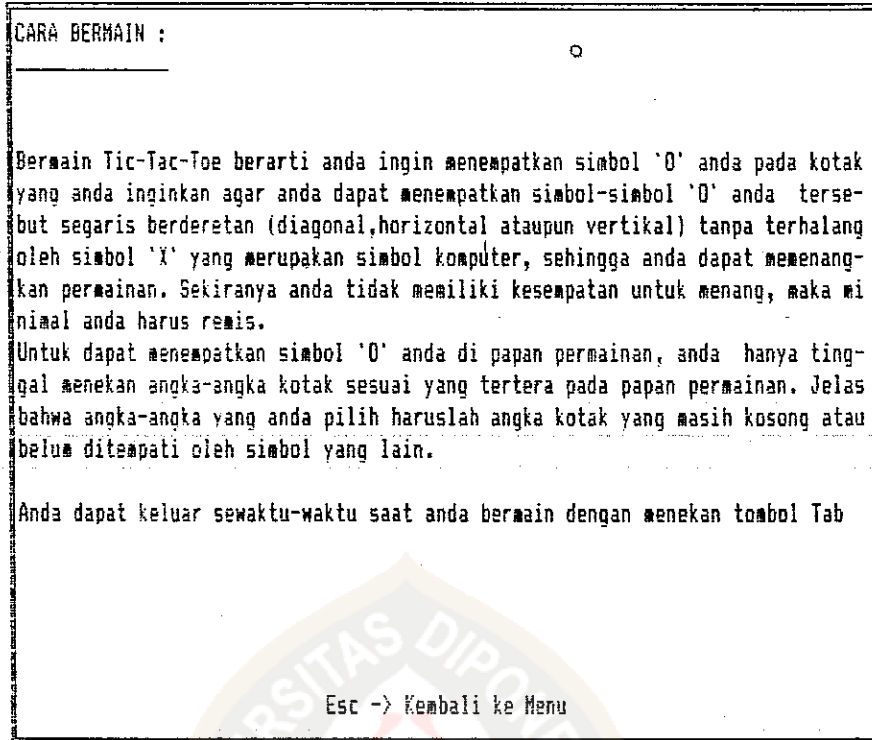




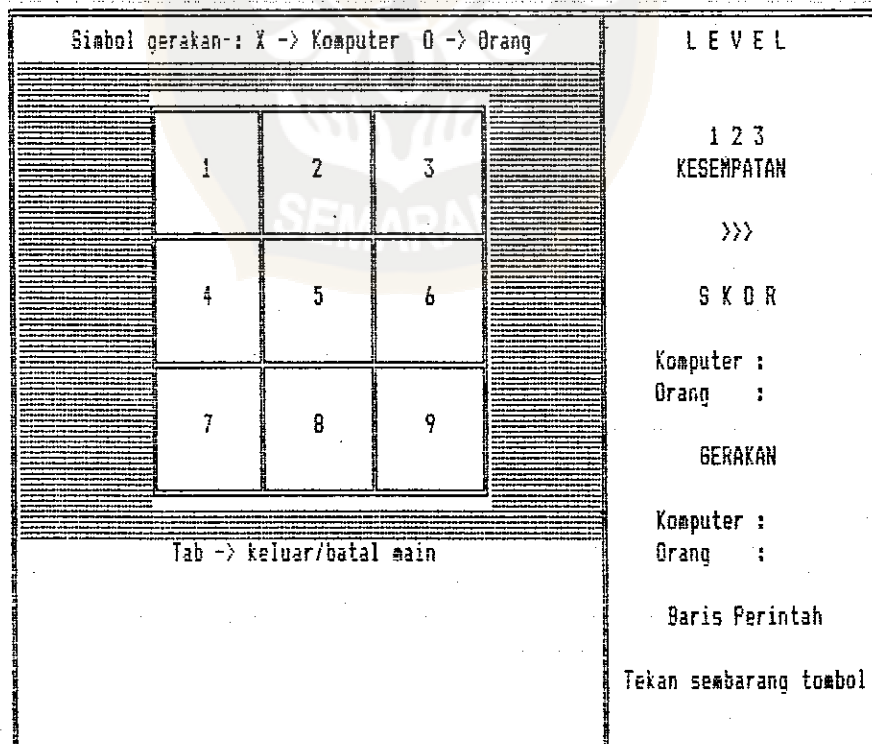
Gambar 1.
Tampilan Awal Program



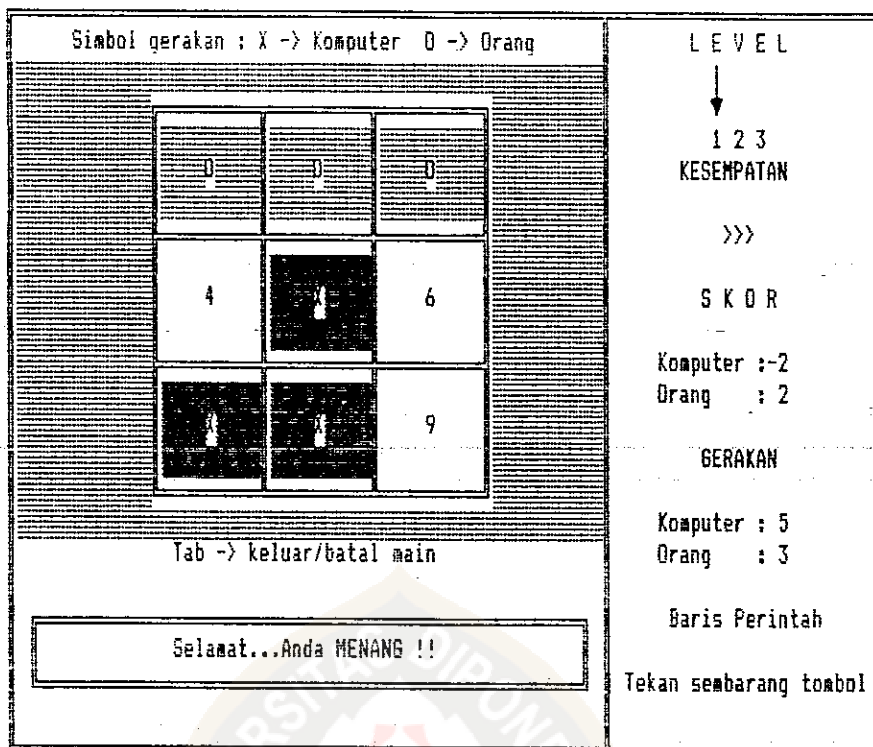
Gambar 2.
Tampilan Gambaran Umum Permainan



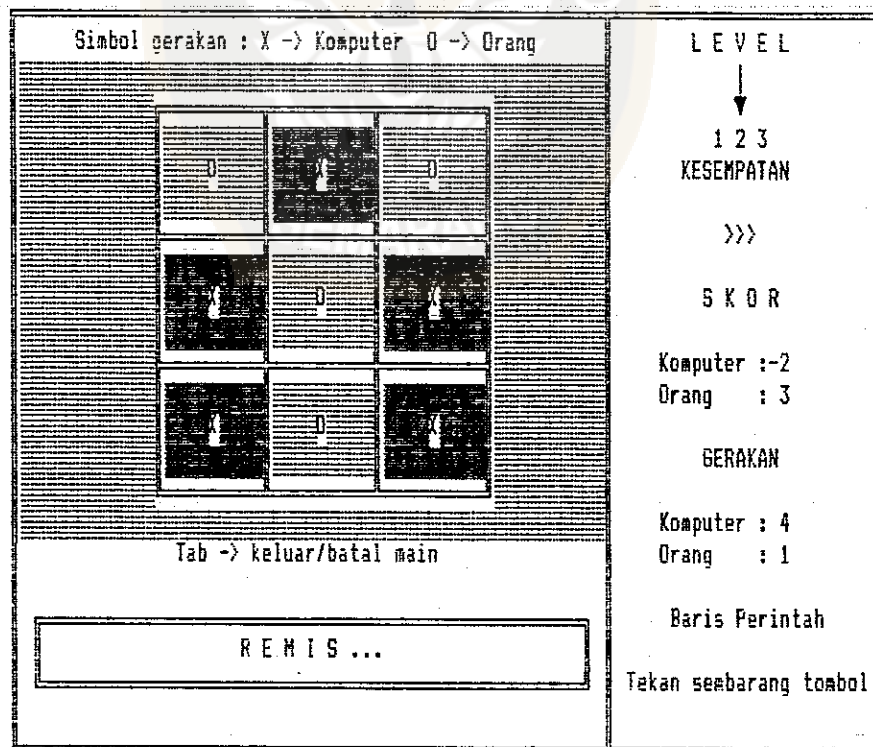
Gambar 3.
Tampilan Cara Bermain



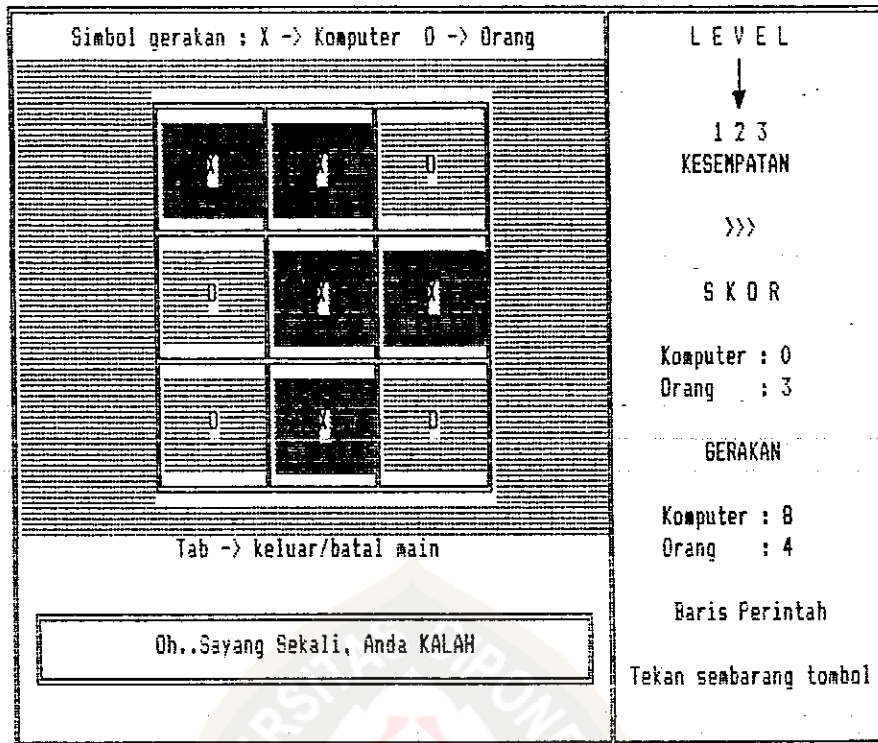
Gambar 4.
Tampilan Papan Permainan Awal



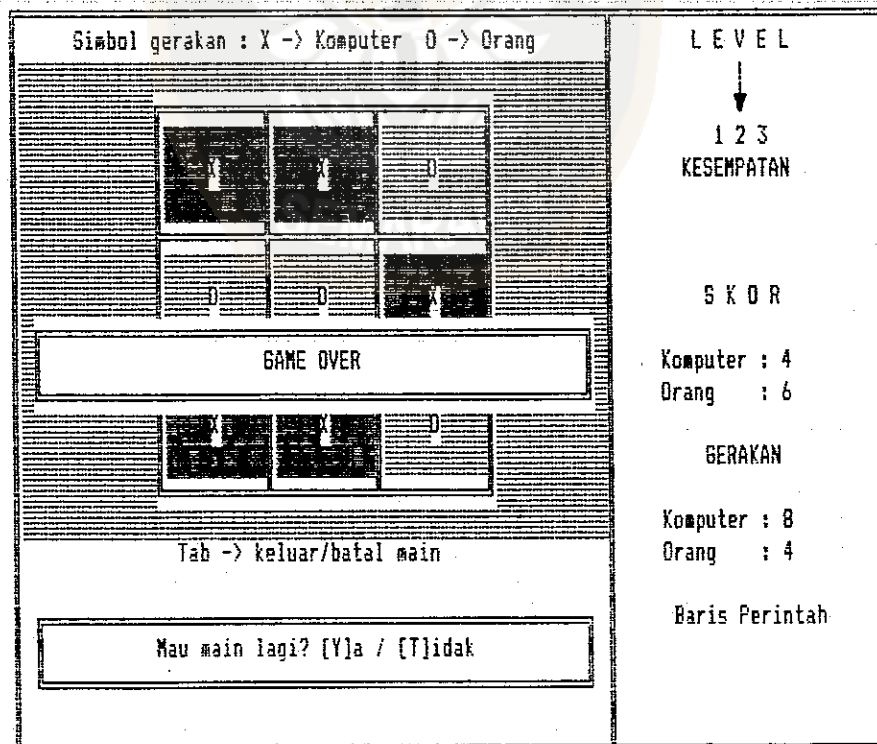
Bambar 5.
Tampilan Saat Orang Memenangkan Permainan



Bambar 6.
Tampilan Saat Terjadi Situasi Remis



Gambar 7.
Tampilan Saat Komputer Memenangkan Permainan



Gambar 8.
Tampilan Saat Situasi Game Over