LAMPIRAN 1

PROGRAM KOMPUTER

2.1. Program Menyimpan Data

```
Program Menyimpan_data;
Uses
 Crt,Regresi;
Var
 y : Vektor;
 x : Matriks;
 i,j,baris,kolom : Integer;
 filv : File of Vektor;
 film : File of Matriks;
 viles,viles2 :string[10];
 jwb:char;

Begin
Repeat
 Clrscr;
 Write('Masukkan nama file  yang akan disimpan utk y = ');readln(viles);
 Assign (filv,viles);                                  {menyimpan Y dalam file}
 Rewrite(filv);
 Write('Jumlah baris : ');Readln(baris);               {jumlah pasangan data}
 Write('Jumlah kolom : ');Readln(kolom);               {jumlah variabel bebas}
 Writeln('Y :');
 For i:= 1 To baris Do begin
 Readln(y[i]);                                 {membaca elemen-elemen vektor Y}
 Write(filv,y);end;
 Close(filv);

 Clrscr;
 Write('Masukkan nama file  yang akan disimpan utk x = ');readln(viles2);
 Assign(film,viles2);                                  {menyimpan X dalam file}
 Rewrite(film);
 Writeln('X :');
 For i:= 1 To baris Do
 Begin
  For j:= 1 To kolom Do
  Begin
   Gotoxy(7*(j),i+2);
   Readln(x[i,j]);
   Write(film,x);              {membaca elemen-elemen X kolom 1 sampai kolom 7}
```

```
 End;
End;
Close(film);
Tekan_esc;
Clrscr;
Write('Ingin menyimpan data lagi (Y/T) ? ');
Readln(JWB);
Until NOT(JWB IN['Y','y']);
End.
```

2.2. Unit Regresi

```
Unit Regresi;
Interface
 Uses Crt;
 Const
  max = 25;
 Type
  indeks = 1..max;
  Matriks = Array[indeks,indeks] of Real;
  Vektor = Array[indeks] of Real;
 Var
  i,j:Byte;

 Procedure Tekan_Esc;
 Procedure Kali_transpose_1(m,n:Byte; x:Matriks; y:Vektor;
        Var z:Vektor);
 Procedure Kali_transpose_2(m,n:Byte; x:Matriks;
        Var z:Matriks);
 Procedure Kali_transpose_3(n:Byte; y1,y2:Vektor;
        Var z:Real);
 Procedure Matriks_invers(baris:Byte; x:Matriks;
        Var z:Matriks);
 Procedure Kali_Matriks(baris_x,kolom_x,kolom_y:Byte;
        x:Matriks; y:Vektor; Var z:Vektor);
 Procedure Anova(k,m:Byte; koef,z,zk:Vektor; Var r,mse:Real);

Implementation
 Procedure Tekan_esc;
 Const
    tekan = 'Tekan <Esc>';
 Begin
    Gotoxy(70-Length(tekan),24);
    Write(tekan);
    Repeat Until Readkey = #27;
```

```
End;

Procedure Kali_transpose_1(m,n:Byte; x:Matriks; y:Vektor;
        Var z:Vektor);
Var
 i,k:Byte;
Begin
 For i:=1 To m Do
 Begin
  z[i]:=0;
  For k:=1 To n Do
   z[i]:=z[i]+x[k,i]*y[k];
 End;
End;

Procedure Kali_transpose_2(m,n:Byte; x:Matriks;
        Var z:Matriks);
Var
 i,j,k:Byte;
Begin
 For i:=1 To m Do
  For j:=1 To m Do
  Begin
   z[i,j]:=0;
   For k:=1 To n Do
    z[i,j]:=z[i,j]+x[k,i]*x[k,j];
  End;
End;

Procedure Kali_transpose_3(n:Byte; y1,y2:Vektor;
        Var z:Real);
Var
 i,k:Byte;
Begin
 z:=0;
 For i:=1 To n Do
  z:=z+y1[i]*y2[i];
End;

Procedure Matriks_invers(baris:Byte; x:Matriks;
        Var z:Matriks);
Var
 det,det_y:Real;
 i,j,k,l,m,n:Byte;
 tanda:Integer;
 y:Matriks;
```

```
Procedure Eliminasi_gauss(baris,kolom:Byte; x:Matriks;
        Var det:Real);
  Var
   tanda:Integer;
   j,k,l,m,n:Byte;
   konst:Real;
  Begin
   tanda:=1;
   For l:=2 To baris Do
   Begin
    For m:=l To baris Do
    Begin
     k:=l-1;
     If x[k,k] = 0 Then
     Begin
      konst:=0;
      n:=k-1;
      While(konst=0)And(n<=baris) Do
      Begin
       n:=n+1;
       konst:=x[n,k];
      End;
      If konst<>0 Then
      Begin
       tanda:=-tanda;
       For j:=k To kolom Do
       Begin
        konst:=x[k,j];
        x[k,j]:=x[n,j];
        x[n,j]:=konst;
       End;
      End
      Else
      Begin
       x[k,k]:=1;
       tanda:=0;
      End;
     End;
     konst:=x[m,k]/x[k,k];
     For n:=k To kolom Do
      x[m,n]:=x[m,n]-konst*x[k,n];
    End;
   End;
   det:=tanda;
   For m:=1 To baris Do det:=det*x[m,m];
  End;
```

```
Begin
 {---Menghitung harga determinan---}
 Eliminasi_Gauss(baris,baris,x,det);

 {---Menghitung invers---}
 For i:=1 To baris Do
 Begin
  For j:=1 To baris Do
  Begin
   m:=0;
   For k:=1 To baris Do
   Begin
    If i<>k Then
    Begin
     m:=m+1;
     n:=0;
     For l:=1 To baris Do
     Begin
      If j<>l Then
      Begin
       n:=n+1;
       y[m,n] := x[k,l];
      End;
     End;
    End;
   End;
   Eliminasi_Gauss(baris-1,baris-1,y,det_y);
   If(i+j) mod 2=0 Then tanda:=1 Else tanda:=-1;
   z[j,i]:=tanda*det_y/det;
  End;
 End;
End;

Procedure Kali_Matriks(baris_x,kolom_x,kolom_y:Byte;
        x:Matriks; y:Vektor; Var z:Vektor);
Var
 k,m,n:Byte;
Begin
 For m:=1 To baris_x Do
  For n:=1 To kolom_y Do
  Begin
   z[m]:=0;
   For k:=1 To kolom_x Do
    z[m]:=z[m]+x[m,k]*y[k];
  End;
End;
```

```
Procedure Anova(k,m:Byte; koef,z,zk:Vektor; Var r,mse:Real);
Var
 i:Byte;
 f,sst,ssr,sse,msr,ay:Real;

 Function Rata_rata(n:Integer; x:Vektor):Real;
 Var
  i:Integer;
  sum_x:Real;
 Begin
  sum_x:=0;
  For i:=1 To n Do
   sum_x:=sum_x+x[i];
  Rata_rata:=sum_x/n;
 End;

 Procedure Tabel_anova(k,n:Byte; sst,ssr,sse,msr,mse,f:Real);
 Var
  i:Byte;
 Begin
  Writeln;writeln;
  Writeln('Tabel ANOVA:');
  For i:=3 To 60 Do Write('=');
  Writeln;
  Writeln('Sumber');
  Gotoxy(16,Wherey-1);Writeln('Jumlah');
  Gotoxy(36,Wherey-1);Writeln('Rata-rata');
  Writeln('variasi');
  Gotoxy(16,Wherey-1);Writeln('Kuadrat');
  Gotoxy(26,Wherey-1);Writeln('dk':3);
  Gotoxy(36,Wherey-1);Writeln('Kuadrat');
  Gotoxy(50,Wherey-1);Writeln('F':3);
  For i:= 3 To 60 Do Write('-');
  Writeln;

  Writeln('Regresi');
  Gotoxy(16,Wherey-1);Writeln(SSR:5:3);
  Gotoxy(26,Wherey-1);Writeln(k-1:3);
  Gotoxy(36,Wherey-1);Writeln(msr:5:3);
  Gotoxy(50,Wherey-1);Writeln(f:5:3);

  Writeln('Kesalahan');
  Gotoxy(16,Wherey-1);Writeln(sse:5:3);
  Gotoxy(26,Wherey-1);Writeln(n-k:3);
  Gotoxy(36,Wherey-1);Writeln(mse:5:3);
  For i:= 3 To 60 Do Write('-');
```

```
 Writeln;
 Writeln('Keseluruhan');
 Gotoxy(16,Wherey-1);Writeln(sst:5:3);
 Gotoxy(26,Wherey-1);Writeln(n-1:3);

 For i:= 3 To 60 Do Write('=');
 Writeln;Writeln;
 Writeln('Ra2:',r:7:3);
End;

Begin
 Kali_transpose_3(m,z,z,ay);
 sst:=ay-m*Sqr(Rata_rata(m,z));

 Kali_transpose_3(m,koef,zk,ay);
 ssr:=ay-m*Sqr(Rata_rata(m,z));
 sse:= sst-ssr;
 msr:= ssr/(k-1);
 mse:= sse/(m-k);
 f:=msr/mse;
 r:= 1-(mse(m-1)/sst);
 Tabel_anova(k,m,sst,ssr,sse,msr,mse,f);
End;
End.
```

2.3. Program Cetak

```
Program Cetak;
Uses
 Crt,Regresi;

Var
 x,xt,xi : Matriks;
 b,xy,y,z : Vektor;
 m,n,i,j,k,baris,kolom : Integer;
 axy,r,mse,y_rata,yy : Real;

Procedure Keluaran(Var x:Matriks; Var y:Vektor);
Var
 Data_mat : File of Matriks;
 Data_vek : File of Vektor;
 i,j,m,n,baris,kolom : Integer;
 viles,vile2 : string[10];
Begin
 Clrscr;
```

```
Write('Masukkan nama file data Y = ');readln(viles);
Assign(Data_vek,viles);
Reset(Data_vek);
Clrscr;
Writeln('Y :');
i:=1;
While not (eof(Data_vek)) do
begin
 Read(Data_vek, y);
 Writeln(y[i]:5:2);i:=i+1;                    {membaca dan mencetak data vektor Y}
end;
Close(Data_vek);
Tekan_esc;
Clrscr;
Write('Masukkan nama file data X = ');readln(vile2);
Write('Jumlah baris file - ',vile2,' = ');Readln(m);
Write('Jumlah kolom file - ',vile2,' = ');Readln(n);
Assign(Data_mat,vile2);
Reset(Data_mat);
Clrscr;
Writeln('X :');
for i:=1 to m do
begin
 for j:=1 to n do
  begin
   Read(Data_mat,x);
   Write(X[i,j]:8:2);                         {membaca dan mencetak data matriks X}
   end;
  Writeln;
 end;
Close(Data_mat);
Tekan_esc;
End;

Function Rata_rata(n:Integer; x:Vektor):Real;
Var
 i:Integer;
 sum_x:Real;
Begin
 sum_x:=0;
 For i:=1 To n Do
  sum_x:=sum_x+x[i];
 Rata_rata:=sum_x/n;
End;
```

```
Begin {---Program utama---}
  Clrscr;
  Keluaran(x,y);                                  {data yang akan diproses}

  Clrscr;
  Write('Masukkan jumlah baris yang akan diproses = ');Readln(baris);
  Write('Masukkan jumlah kolom yang akan diproses = ');Readln(kolom);
  Clrscr;
  Writeln('X(T)Y :');                             {menghitung transpose X kali Y}
  Kali_transpose_1(kolom,baris,x,y,xy);
  For i:= 1 To kolom Do
   Write(xy[i]:8:2);

  Writeln;Writeln;
  Writeln('X(T)X :');                             {menghitung transpose X kali X}
  Kali_transpose_2(kolom,baris,x,xt);
  For i:= 1 To kolom Do
  Begin
    For j:= 1 To kolom Do
     Write(xt[i,j]:8:3);
     Writeln;
  End;

  Writeln;
  Writeln('[X(T)X](-1) :');              {menghitung invers hasil kali transpose X}
  Matriks_invers(kolom,xt,xi);           {dengan X}
  For i:= 1 To kolom Do
  Begin
    For j:= 1 To kolom Do
     Write(xi[i,j]:8:2);
     Writeln;
  End;

  Writeln;
  Writeln('b :');                                 {menghitung koefisien regresi b}
  Kali_matriks(kolom,kolom,1,xi,xy,b);
  For i:= 1 To kolom Do
   Write(b[i]:8:2);
  Tekan_esc;
  Clrscr;
  Writeln;
  Anova(kolom,baris,b,y,xy,r,mse);                {tabel ANOVA}
  Tekan_esc;
End.
```

LAMPIRAN 2

DATA PERCOBAAN

PADA PENGUKURAN TEKSTUR KUE PASTEL IKAN

2.1. Data I

Y :

1.98
1.70
0.68
0.67
1.53
1.48
1.18
1.40
1.45
1.39
1.19
1.12
1.65
1.54

X :

1.00	0.00	0.00	0.00	0.00	0.00	0.00
1.00	0.00	0.00	0.00	0.00	0.00	0.00
0.00	1.00	0.00	0.00	0.00	0.00	0.00
0.00	1.00	0.00	0.00	0.00	0.00	0.00
0.00	0.00	1.00	0.00	0.00	0.00	0.00
0.00	0.00	1.00	0.00	0.00	0.00	0.00
0.50	0.50	0.00	0.25	0.00	0.00	0.00
0.50	0.50	0.00	0.25	0.00	0.00	0.00
0.50	0.00	0.50	0.00	0.25	0.00	0.00
0.50	0.00	0.50	0.00	0.25	0.00	0.00
0.00	0.50	0.50	0.00	0.00	0.25	0.00
0.00	0.50	0.50	0.00	0.00	0.25	0.00
0.33	0.33	0.33	0.11	0.11	0.11	0.03
0.33	0.33	0.33	0.11	0.11	0.11	0.03

2.2. Data II

Y :

3.12
2.89
1.18
1.24
2.36
2.27
1.96
1.90
2.66
2.48
1.80
1.86
2.09
1.79

X :

1.00	0.00	0.00	0.00	0.00	0.00	0.00
1.00	0.00	0.00	0.00	0.00	0.00	0.00
0.00	1.00	0.00	0.00	0.00	0.00	0.00
0.00	1.00	0.00	0.00	0.00	0.00	0.00
0.00	0.00	1.00	0.00	0.00	0.00	0.00
0.00	0.00	1.00	0.00	0.00	0.00	0.00
0.50	0.50	0.00	0.25	0.00	0.00	0.00
0.50	0.50	0.00	0.25	0.00	0.00	0.00
0.50	0.00	0.50	0.00	0.25	0.00	0.00
0.50	0.00	0.50	0.00	0.25	0.00	0.00
0.00	0.50	0.50	0.00	0.00	0.25	0.00
0.00	0.50	0.50	0.00	0.00	0.25	0.00
0.33	0.33	0.33	0.11	0.11	0.11	0.03
0.33	0.33	0.33	0.11	0.11	0.11	0.03

2.3. Data III

Y :

2.34
2.30
0.97
0.97
2.11
2.13
1.48
1.43
1.80
2.06
1.21
1.34
1.53
1.56

X :

1.00	0.00	0.00	0.00	0.00	0.00	0.00
1.00	0.00	0.00	0.00	0.00	0.00	0.00
0.00	1.00	0.00	0.00	0.00	0.00	0.00
0.00	1.00	0.00	0.00	0.00	0.00	0.00
0.00	0.00	1.00	0.00	0.00	0.00	0.00
0.00	0.00	1.00	0.00	0.00	0.00	0.00
0.50	0.50	0.00	0.25	0.00	0.00	0.00
0.50	0.50	0.00	0.25	0.00	0.00	0.00
0.50	0.00	0.50	0.00	0.25	0.00	0.00
0.50	0.00	0.50	0.00	0.25	0.00	0.00
0.00	0.50	0.50	0.00	0.00	0.25	0.00
0.00	0.50	0.50	0.00	0.00	0.25	0.00
0.33	0.33	0.33	0.11	0.11	0.11	0.03
0.33	0.33	0.33	0.11	0.11	0.11	0.03

LAMPIRAN 3

OUTPUT HASIL ANALISA DATA

3.1. Data I

Masukkan jumlah baris yang akan diproses = 14
Masukkan jumlah kolom yang akan diproses = 7

X(T)Y :

7.44	4.85	6.64	1.00	1.06	0.93	0.10

X(T)X :

3.218	0.718	0.718	0.323	0.323	0.073	0.020
0.718	3.218	0.718	0.323	0.073	0.323	0.020
0.718	0.718	3.218	0.073	0.323	0.323	0.020
0.323	0.323	0.073	0.149	0.024	0.024	0.007
0.323	0.073	0.323	0.024	0.149	0.024	0.007
0.073	0.323	0.323	0.024	0.024	0.149	0.007
0.020	0.020	0.020	0.007	0.007	0.007	0.002

[X(T)X](-1) :

0.50	0.00	0.00	-1.00	-1.00	-0.00	1.83
0.00	0.50	0.00	-1.00	-0.00	-1.00	1.83
0.00	0.00	0.50	-0.00	-1.00	-1.00	1.83
-1.00	-1.00	-0.00	12.00	2.00	2.00	-36.67
-1.00	-0.00	-1.00	2.00	12.00	2.00	-36.67
-0.00	-1.00	-1.00	2.00	2.00	12.00	-36.67
1.83	1.83	1.83	-36.67	-36.67	-36.67	898.39

b :

1.84	0.68	1.51	0.13	-1.01	0.26	11.22

Tabel ANOVA:

Sumber variasi	Jumlah Kuadrat	dk	Rata-rata Kuadrat	F
Regresi	1.652	6	0.275	25.703
Kesalahan	0.075	7	0.011	
Keseluruhan	1.727	13		

Ra2: 0.919

3.1.1. Kasus 1 : Model Kuadratik

Masukkan jumlah baris yang akan diproses = 14
Masukkan jumlah kolom yang akan diproses = 6

X(T)Y :

7.44	4.85	6.64	1.00	1.06	0.93

X(T)X :

3.218	0.718	0.718	0.323	0.323	0.073
0.718	3.218	0.718	0.323	0.073	0.323
0.718	0.718	3.218	0.073	0.323	0.323
0.323	0.323	0.073	0.149	0.024	0.024
0.323	0.073	0.323	0.024	0.149	0.024
0.073	0.323	0.323	0.024	0.024	0.149

[X(T)X](-1) :

0.50	-0.00	-0.00	-0.93	-0.93	0.07
-0.00	0.50	-0.00	-0.93	0.07	-0.93
-0.00	-0.00	0.50	0.07	-0.93	-0.93
-0.93	-0.93	0.07	10.50	0.50	0.50
-0.93	0.07	-0.93	0.50	10.50	0.50
0.07	-0.93	-0.93	0.50	0.50	10.50

b :

1.82	0.65	1.48	0.59	-0.55	0.72

Tabel ANOVA:

Sumber variasi	Jumlah Kuadrat	dk	Rata-rata Kuadrat	F
Regresi	1.512	5	0.302	11.247
Kesalahan	0.215	8	0.027	
Keseluruhan	1.727	13		

Ra2: 0.798

3.1.2. Kasus 2 : Model Linier

Masukkan jumlah baris yang akan diproses = 14
Masukkan jumlah kolom yang akan diproses = 3

X(T)Y :

7.44	4.85	6.64

X(T)X :

3.218	0.718	0.718
0.718	3.218	0.718
0.718	0.718	3.218

[X(T)X](-1) :

0.34	-0.06	-0.06
-0.06	0.34	-0.06
-0.06	-0.06	0.34

b :

1.81	0.77	1.49

Tabel ANOVA:

Sumber variasi	Jumlah Kuadrat	dk	Rata-rata Kuadrat	F
Regresi	1.398	2	0.699	23.357
Kesalahan	0.329	11	0.030	
Keseluruhan	1.727	13		

Ra2: 0.775

3.2. Data II

Masukkan jumlah baris yang akan diproses = 14
Masukkan jumlah kolom yang akan diproses = 7

X(T)Y :

11.79	7.46	10.31	1.39	1.71	1.34	0.12

X(T)X :

3.218	0.718	0.718	0.323	0.323	0.073	0.020
0.718	3.218	0.718	0.323	0.073	0.323	0.020
0.718	0.718	3.218	0.073	0.323	0.323	0.020
0.323	0.323	0.073	0.149	0.024	0.024	0.007
0.323	0.073	0.323	0.024	0.149	0.024	0.007
0.073	0.323	0.323	0.024	0.024	0.149	0.007
0.020	0.020	0.020	0.007	0.007	0.007	0.002

[X(T)X](-1) :

0.50	0.00	0.00	-1.00	-1.00	-0.00	1.83
0.00	0.50	0.00	-1.00	-0.00	-1.00	1.83
0.00	0.00	0.50	-0.00	-1.00	-1.00	1.83
-1.00	-1.00	-0.00	12.00	2.00	2.00	-36.67
-1.00	-0.00	-1.00	2.00	12.00	2.00	-36.67
-0.00	-1.00	-1.00	2.00	2.00	12.00	-36.67
1.83	1.83	1.83	-36.67	-36.67	-36.67	898.39

b :

3.00	1.21	2.32	-0.71	-0.36	0.27	-4.23

Tabel ANOVA:

Sumber variasi	Jumlah Kuadrat	dk	Rata-rata Kuadrat	F
Regresi	4.008	6	0.668	48.162
Kesalahan	0.097	7	0.014	
Keseluruhan	4.106	13		

Ra2: 0.956

3.2.1. Kasus 1 : Model Kuadratik

Masukkan jumlah baris yang akan diproses = 14
Masukkan jumlah kolom yang akan diproses = 6

X(T)Y :

11.79	7.46	10.31	1.39	1.71	1.34

X(T)X :

3.218	0.718	0.718	0.323	0.323	0.073
0.718	3.218	0.718	0.323	0.073	0.323
0.718	0.718	3.218	0.073	0.323	0.323
0.323	0.323	0.073	0.149	0.024	0.024
0.323	0.073	0.323	0.024	0.149	0.024
0.073	0.323	0.323	0.024	0.024	0.149

[X(T)X](-1) :

0.50	-0.00	-0.00	-0.93	-0.93	0.07
-0.00	0.50	-0.00	-0.93	0.07	-0.93
-0.00	-0.00	0.50	0.07	-0.93	-0.93
-0.93	-0.93	0.07	10.50	0.50	0.50
-0.93	0.07	-0.93	0.50	10.50	0.50
0.07	-0.93	-0.93	0.50	0.50	10.50

b :

3.01	1.22	2.32	-0.88	-0.53	0.10

Tabel ANOVA:

Sumber variasi	Jumlah Kuadrat	dk	Rata-rata Kuadrat	F
Regresi	3.989	5	0.798	54.536
Kesalahan	0.117	8	0.015	
Keseluruhan	4.106	13		

Ra2: 0.954

3.2.2. Kasus 2 : Model Linier

Masukkan jumlah baris yang akan diproses = 14
Masukkan jumlah kolom yang akan diproses = 3

X(T)Y :

11.79	7.46	10.31

X(T)X :

3.218	0.718	0.718
0.718	3.218	0.718
0.718	0.718	3.218

[X(T)X](-1) :

0.34	-0.06	-0.06
-0.06	0.34	-0.06
-0.06	-0.06	0.34

b :

2.89	1.16	2.30

Tabel ANOVA:

Sumber variasi	Jumlah Kuadrat	dk	Rata-rata Kuadrat	F
Regresi	3.889	2	1.944	98.729
Kesalahan	0.217	11	0.020	
Keseluruhan	4.106	13		

Ra2: 0.938

3.3. Data III

Masukkan jumlah baris yang akan diproses = 14
Masukkan jumlah kolom yang akan diproses = 7

X(T)Y :

9.04	5.69	8.46	1.07	1.30	0.98	0.09

X(T)X :

3.218	0.718	0.718	0.323	0.323	0.073	0.020
0.718	3.218	0.718	0.323	0.073	0.323	0.020
0.718	0.718	3.218	0.073	0.323	0.323	0.020
0.323	0.323	0.073	0.149	0.024	0.024	0.007
0.323	0.073	0.323	0.024	0.149	0.024	0.007
0.073	0.323	0.323	0.024	0.024	0.149	0.007
0.020	0.020	0.020	0.007	0.007	0.007	0.002

[X(T)X](-1) :

0.50	0.00	0.00	-1.00	-1.00	-0.00	1.83
0.00	0.50	0.00	-1.00	-0.00	-1.00	1.83
0.00	0.00	0.50	-0.00	-1.00	-1.00	1.83
-1.00	-1.00	-0.00	12.00	2.00	2.00	-36.67
-1.00	-0.00	-1.00	2.00	12.00	2.00	-36.67
-0.00	-1.00	-1.00	2.00	2.00	12.00	-36.67
1.83	1.83	1.83	-36.67	-36.67	-36.67	898.39

b :

2.32	0.97	2.12	-0.76	-1.16	-1.08	2.99

Tabel ANOVA:

Sumber variasi	Jumlah Kuadrat	dk	Rata-rata Kuadrat	F
Regresi	2.799	6	0.467	72.656
Kesalahan	0.045	7	0.006	
Keseluruhan	2.844	13		

Ra2: 0.971

3.3.1. Kasus 1 : Model Kuadratik

Masukkan jumlah baris yang akan diproses = 14
Masukkan jumlah kolom yang akan diproses = 6

X(T)Y :

9.04	5.69	8.46	1.07	1.30	0.98

X(T)X :

3.218	0.718	0.718	0.323	0.323	0.073
0.718	3.218	0.718	0.323	0.073	0.323
0.718	0.718	3.218	0.073	0.323	0.323
0.323	0.323	0.073	0.149	0.024	0.024
0.323	0.073	0.323	0.024	0.149	0.024
0.073	0.323	0.323	0.024	0.024	0.149

[X(T)X](-1) :

0.50	-0.00	-0.00	-0.93	-0.93	0.07
-0.00	0.50	-0.00	-0.93	0.07	-0.93
-0.00	-0.00	0.50	0.07	-0.93	-0.93
-0.93	-0.93	0.07	10.50	0.50	0.50
-0.93	0.07	-0.93	0.50	10.50	0.50
0.07	-0.93	-0.93	0.50	0.50	10.50

b :

2.31	0.96	2.11	-0.64	-1.04	-0.96

Tabel ANOVA:

Sumber variasi	Jumlah Kuadrat	dk	Rata-rata Kuadrat	F
Regresi	2.789	5	0.558	81.292
Kesalahan	0.055	8	0.007	
Keseluruhan	2.844	13		

Ra2: 0.969

3.3.2. Kasus 2 : Model Linier

Masukkan jumlah baris yang akan diproses = 14
Masukkan jumlah kolom yang akan diproses = 3

X(T)Y :

9.04	5.69	8.46

X(T)X :

3.218	0.718	0.718
0.718	3.218	0.718
0.718	0.718	3.218

[X(T)X](-1) :

0.34	-0.06	-0.06
-0.06	0.34	-0.06
-0.06	-0.06	0.34

b :

2.19	0.84	1.95

Tabel ANOVA:

Sumber variasi	Jumlah Kuadrat	dk	Rata-rata Kuadrat	F
Regresi	2.580	2	1.290	53.585
Kesalahan	0.265	11	0.024	
Keseluruhan	2.844	13		

Ra2: 0.890

LAMPIRAN 4

TABEL DISTRIBUSI F ($\alpha = 0.01$)

V_2 \ V_1	Derajat kebebasan untuk pembilang																		
	1	2	3	4	5	6	7	8	9	10	12	15	20	24	30	40	60	120	∞
1	4,052	5,000	5,403	5,625	5,764	5,859	5,928	5,982	6,023	6,056	6,106	6,157	6,209	6,235	6,261	6,287	6,313	6,339	6,366
2	98.5	99.0	99.2	99.2	99.3	99.3	99.4	99.4	99.4	99.4	99.4	99.4	99.4	99.5	99.5	99.5	99.5	99.5	99.5
3	34.1	30.8	29.5	28.7	28.2	27.9	27.7	27.5	27.3	27.2	27.1	26.9	26.7	26.6	26.5	26.4	26.3	26.2	26.1
4	21.2	18.0	16.7	16.0	15.5	15.2	15.0	14.8	14.7	14.5	14.4	14.2	14.0	13.9	13.8	13.7	13.7	13.6	13.5
5	16.3	13.2	12.1	11.4	11.0	10.7	10.5	10.3	10.2	10.1	9.89	9.72	9.55	9.47	9.38	9.29	9.20	9.11	9.02
6	13.7	10.9	9.78	9.15	8.75	8.47	8.26	8.10	7.98	7.87	7.72	7.56	7.40	7.31	7.23	7.14	7.06	6.97	6.88
7	12.2	9.55	8.45	7.85	7.46	7.19	6.99	6.84	6.72	6.62	6.47	6.31	6.16	6.07	5.99	5.91	5.82	5.74	5.65
8	11.3	8.65	7.59	7.01	6.63	6.37	6.18	6.03	5.91	5.81	5.67	5.52	5.36	5.28	5.20	5.12	5.03	4.95	4.86
9	10.6	8.02	6.99	6.42	6.06	5.80	5.61	5.47	5.35	5.26	5.11	4.96	4.81	4.73	4.65	4.57	4.48	4.40	4.31
10	10.0	7.56	6.55	5.99	5.64	5.39	5.20	5.06	4.94	4.85	4.71	4.56	4.41	4.33	4.25	4.17	4.08	4.00	3.91
11	9.65	7.21	6.22	5.67	5.32	5.07	4.89	4.74	4.63	4.54	4.40	4.25	4.10	4.02	3.94	3.86	3.78	3.69	3.60
12	9.33	6.93	5.95	5.41	5.06	4.82	4.64	4.50	4.39	4.30	4.16	4.01	3.86	3.78	3.70	3.62	3.54	3.45	3.36
13	9.07	6.70	5.74	5.21	4.86	4.62	4.44	4.30	4.19	4.10	3.96	3.82	3.66	3.59	3.51	3.43	3.34	3.25	3.17
14	8.86	6.51	5.56	5.04	4.70	4.46	4.28	4.14	4.03	3.94	3.80	3.66	3.51	3.43	3.35	3.27	3.18	3.09	3.00
15	8.68	6.36	5.42	4.89	4.56	4.32	4.14	4.00	3.89	3.80	3.67	3.52	3.37	3.29	3.21	3.13	3.05	2.96	2.87
16	8.53	6.23	5.29	4.77	4.44	4.20	4.03	3.89	3.78	3.69	3.55	3.41	3.26	3.18	3.10	3.02	2.93	2.84	2.75
17	8.40	6.11	5.19	4.67	4.34	4.10	3.93	3.79	3.68	3.59	3.46	3.31	3.16	3.08	3.00	2.92	2.83	2.75	2.65
18	8.29	6.01	5.09	4.58	4.25	4.01	3.84	3.71	3.60	3.51	3.37	3.23	3.08	3.00	2.92	2.84	2.75	2.66	2.57
19	8.19	5.93	5.01	4.50	4.17	3.94	3.77	3.63	3.52	3.43	3.30	3.15	3.00	2.92	2.84	2.76	2.67	2.58	2.49
20	8.10	5.85	4.94	4.43	4.10	3.87	3.70	3.56	3.46	3.37	3.23	3.09	2.94	2.86	2.78	2.69	2.61	2.52	2.42
21	8.02	5.78	4.87	4.37	4.04	3.81	3.64	3.51	3.40	3.31	3.17	3.03	2.88	2.80	2.72	2.64	2.55	2.46	2.36
22	7.95	5.72	4.82	4.31	3.99	3.76	3.59	3.45	3.35	3.26	3.12	2.98	2.83	2.75	2.67	2.58	2.50	2.40	2.31
23	7.88	5.66	4.76	4.26	3.94	3.71	3.54	3.41	3.30	3.21	3.07	2.93	2.78	2.70	2.62	2.54	2.45	2.35	2.26
24	7.82	5.61	4.72	4.22	3.90	3.67	3.50	3.36	3.26	3.17	3.03	2.89	2.74	2.66	2.58	2.49	2.40	2.31	2.21
25	7.77	5.57	4.68	4.18	3.86	3.63	3.46	3.32	3.22	3.13	2.99	2.85	2.70	2.62	2.53	2.45	2.36	2.27	2.17
30	7.56	5.39	4.51	4.02	3.70	3.47	3.30	3.17	3.07	2.98	2.84	2.70	2.55	2.47	2.39	2.30	2.21	2.11	2.01
40	7.31	5.18	4.31	3.83	3.51	3.29	3.12	2.99	2.89	2.80	2.66	2.52	2.37	2.29	2.20	2.11	2.02	1.92	1.80
60	7.08	4.98	4.13	3.65	3.34	3.12	2.95	2.82	2.72	2.63	2.50	2.35	2.20	2.12	2.03	1.94	1.84	1.73	1.60
120	6.85	4.79	3.95	3.48	3.17	2.96	2.79	2.66	2.56	2.47	2.34	2.19	2.03	1.95	1.86	1.76	1.66	1.53	1.38
∞	6.63	4.61	3.78	3.32	3.02	2.80	2.64	2.51	2.41	2.32	2.18	2.04	1.88	1.79	1.70	1.59	1.47	1.32	1.00

†Tabel ini dikutip dari M. Merrington and C.M. Thompson, "Tables of percentage points of the inverted beta (F) distribution," *Biometrika*, Vol. 33 (1943).