1. X 0 2 5 7

Y -1 5 12 20

1. t 1 2 3 4 5 6

N 1300 1500 1750 1900 2400 2950

Also estimate N(4.5)

Pseudocode

1. Start
2. Enter the number of data points (n)
3. Enter the respective values of variables x and y

i.e. enter data:

for I = 1 to N

read (xi,yi)

next

1. Initialize

sumx=0

sumx2=0

sumy=0

sumxy=0

1. Compute sums

for i = 1 to n

sumx=sumx+x[i]

sumx2=sumx2+x[i]\*x[i]

sumy=sumy+y[i]

sumxy=sumxy+x[i]\*y[i]

1. Compute values of slope b and intercept a

1.

C Program for fitting Regression line using least squares

Enter the values of number of data points(N): 4

Enter the respective values of the variables x and y in pairs:

0 -1

2 5

5 12

7 20

The table of values you entered is as follows:

0.000000 -1.000000

2.000000 5.000000

5.000000 12.000000

7.000000 20.000000

The values of a and b are: a=-1.1379 and b=2.8966

The equation of the best fit of the line is y=-1.1379+2.8966x

--------------------------------

Process exited with return value 13

Press any key to continue . . .

2.

C Program for fitting Regression line using least squares

Enter the values of number of data points(N): 6

Enter the respective values of the variables x and y in pairs:

1 1300

2 1500

3 1750

4 1900

5 2400

6 2950

The table of values you entered is as follows:

1.000000 1300.000000

2.000000 1500.000000

3.000000 1750.000000

4.000000 1900.000000

5.000000 2400.000000

6.000000 2950.000000

The values of a and b are: a=856.6667 and b=317.1429

The equation of the best fit of the line is y=856.6667+317.1429x

--------------------------------

Process exited with return value 13

Press any key to continue . . .

Pseudocode

1. Start
2. Enter the number of data points (n)
3. Enter data

for i = 1 to n

read (xi, yi)

next i

1. Set Y[i]= log(y[i]), A=lna
2. Initialize:

sumx=0

sumx2=0

sumY=0

sumxY=0

1. Compute sum

for i = 1 to n

sumx=sumx+x[i]

sumx2=sumx2+x[i]\*x[i]

sumY=sumY+Y[i]

sumxY=sumxY+x[i]\*Y[i]

1. Compute slope b and intercept A
2. Transform A into a

i.e. a=exp(A)

1. Display values of a and b
2. Substitute the values of a and b in

y=ae^(bx)

1. Stop

3.

C Program for fitting Curves using the method of least squares

Enter the values of number of data points(N): 4

Enter the respective values of the variables x and y in pairs:

0 -1

2 5

5 12

7 20

The table of values you entered is as follows:

0.000000 -1.000000

2.000000 5.000000

5.000000 12.000000

7.000000 20.000000

The values of a and b are: a=-1.#IND and b=-1.#IND

The fitted curve is y=-1.#IND\*e^(-1.#INDx)

The value of y at x=4.5 is: -1.#IND00

--------------------------------

Process exited with return value 13

Press any key to continue . . .

Reason

Value of y can never be negative if it is the power of a positive number, although the power is negative.

ln of a negative number does not exist.

4.

C Program for fitting Curves using the method of least squares

Enter the values of number of data points(N): 6

Enter the respective values of the variables x and y in pairs:

1 1300

2 1500

3 1750

4 1900

5 2400

6 2950

The table of values you entered is as follows:

1.000000 1300.000000

2.000000 1500.000000

3.000000 1750.000000

4.000000 1900.000000

5.000000 2400.000000

6.000000 2950.000000

The values of a and b are: a=1082.0068 and b=0.1597

The fitted curve is y=1082.0068\*e^(0.1597x)

The value of y at x=4.5 is: 2219.897705

--------------------------------

Process exited with return value 13

Press any key to continue . . .