**Practical No:5 Date:**

**Fitting of straight line**

**Exercise:**

1. Develop C Program for best fitting of straight line to the following data.

|  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- |
| x | 19 | 25 | 30 | 36 | 40 | 45 | 50 |
| y | 76 | 77 | 79 | 80 | 82 | 83 | 85 |

**Programme:**

#include<stdio.h>

#include<math.h>

int main() {

int i,j,n;

printf("170120116109\n");

float x[10],y[10],s1=0,s2=0,s3=0,s4=0,a,d,b;

printf("\nEnter the Value of n\n");

scanf("%d",&n);

printf("\nEnter the values of x:\n");

for(i=0;i<n;i++) {

scanf("%f",&x[i]);}

printf("\nEnter the values of y:\n");

for(i=0;i<n;i++) {

scanf("%f",&y[i]);

}

for(i=0;i<n;i++) {

s1=s1+x[i];

s2=s2+x[i]\*x[i];

s3=s3+y[i];

s4=s4+x[i]\*y[i];

}

d=n\*s2-s1\*s1;

a=(s2\*s3-s1\*s4)/d;

b=(n\*s4-s1\*s3)/d;

printf("\nThe values of a and b are : %f\t%f\n",a,b);

printf("\nThe Required Linear Relation is : \n");

if(b>0){

printf("\ny=%f+%fx\n",a,b);

}

else {

printf("y=%f%fx",a,b);

}

}

**Output:**

