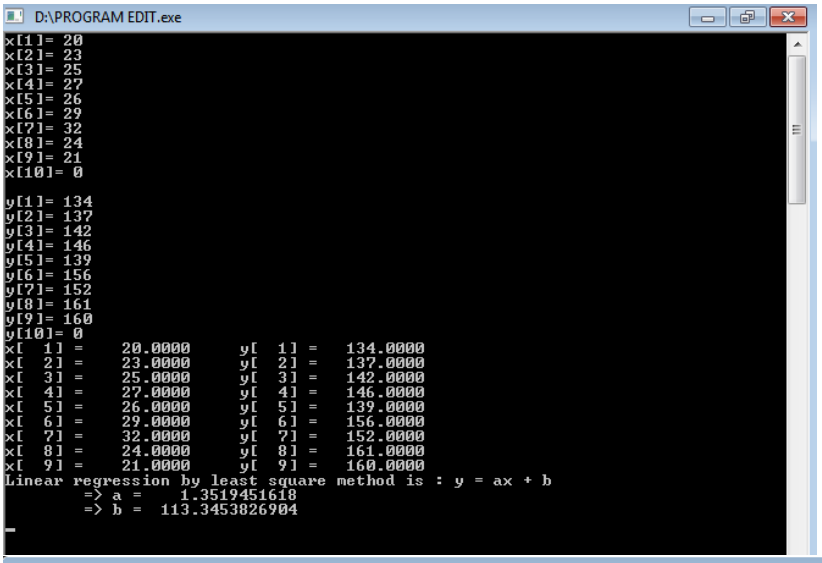
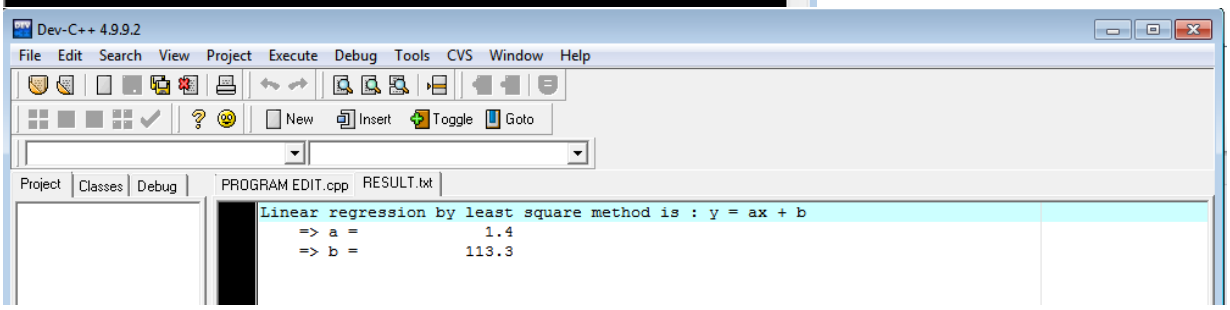
ชื่อ นางสาวชลธิชา พ่วงเฟื่อง **รหัสนักศึกษา** 63090500006

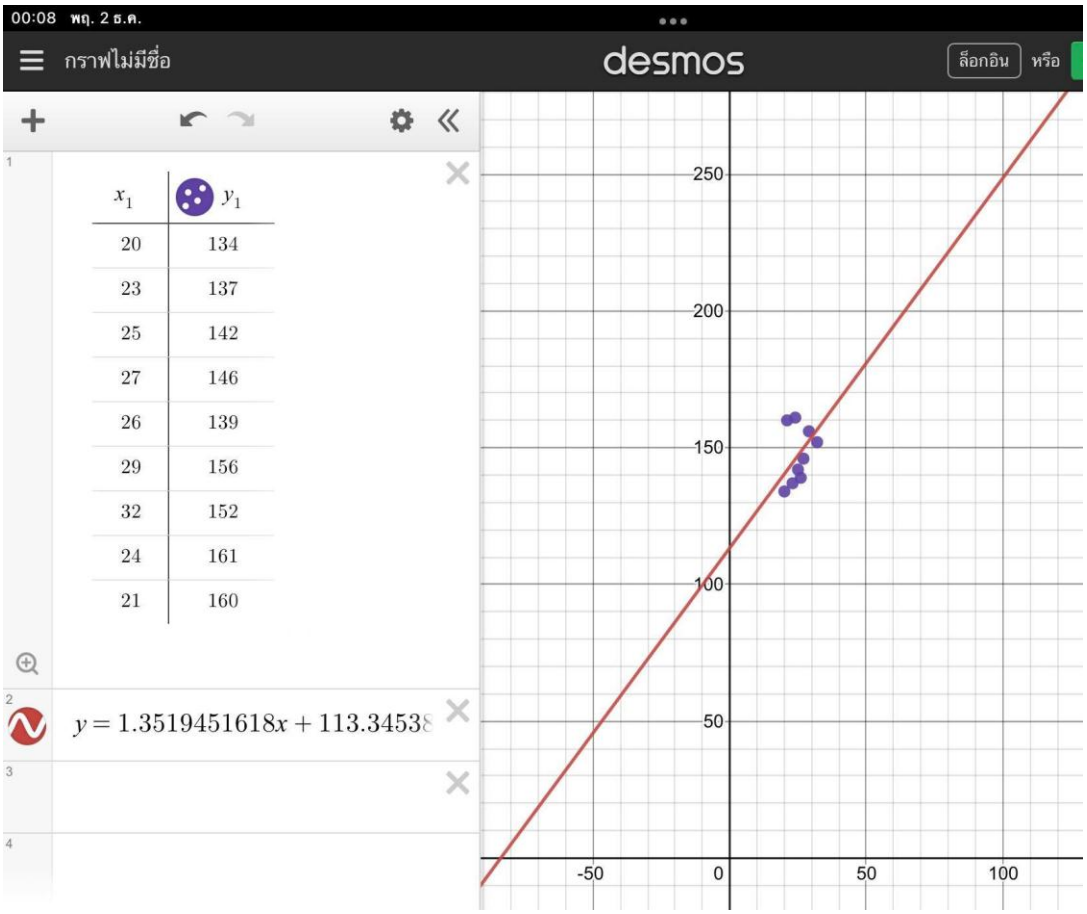
```
#include<stdio.h>
#include<conio.h>
#include<math.h>

void display(float x[101],float y[101],int n);
float mean(float x[101],int n);
float cov(float x[101],float y[101],int n);

int main()
	{	int i,n,N=0,flag;
		float x[101],y[101],x_mean,y_mean,cov_xx,cov_xy,a,b;
		FILE *fp;
		fp = fopen("DATA.text","r");
		for(i=1;;i++)
		{	printf("x[%d]= ",i);
			scanf("%f",&x[i]);
			if(x[i]<=0)break;
		}
		n = i-1;
	  printf("\n");
		for(i=1;;i++)
		{
		printf("y[%d]= ",i);
			scanf("%f",&y[i]);
			if(y[i]<=0)break;
		}

		fclose(fp);
		display(x,y,n);
		x_mean = mean(x,n);
		y_mean = mean(y,n);
```

```
		cov_xx = cov(x,x,n);
		cov_xy = cov(x,y,n);
		a = cov_xy/cov_xx;
		b = y_mean - a*x_mean;
		printf("Linear regression by least square method is : y = ax + b\n");
		printf("\t=> a = %15.10f\n",a);
		printf("\t=> b = %15.10f\n",b);
		fp = fopen("RESULT.txt","w");
		fprintf(fp,"Linear regression by least square method is : y = ax + b\n");
		fprintf(fp,"\t=> a = %15.1f\n",a);
		fprintf(fp,"\t=> b = %15.1f\n",b);
		fclose(fp);
		getch();
		return 0;
	}

void display(float x[101],float y[101],int n)
	{	int i;
		for(i=1;i<=n;i++)
			printf("x[%3d] = %10.4f\ty[%3d] = %10.4f\n",i,x[i],i,y[i]);
	}

float mean(float x[101],int n)
	{	int i;
		float sum=0,mean_value;

		for(i=1;i<=n;i++)
			sum = sum + x[i];
		mean_value = sum/n;
		return mean_value;
	}

float cov(float x[101],float y[101],int n)
```

```
{      int i;
       float sum = 0,mean_1,mean_2,cov_value;


       mean_1 = mean(x,n);
       mean_2 = mean(y,n);
       for(i=1;i<n;i++)
              sum = sum + (mean_1 - x[i])*(mean_2 - y[i]);
       cov_value = sum/n;
       return cov_value;
}
```


D:\PROGRAM EDIT.exe
x[1]= 20
x[2]= 23
x[3]= 25
x[4]= 27
x[5]= 26
x[6]= 29
x[7]= 32
x[8]= 24
x[9]= 21
x[10]= 0
y[1]= 134
y[2]= 137
y[3]= 142
y[4]= 146
y[5]= 139
y[6]= 156
y[7]= 152
y[8]= 161
y[9]= 160
y[10]= 0
x[1] = 20.0000 y[1] = 134.0000
x[2] = 23.0000 y[2] = 137.0000
x[3] = 25.0000 y[3] = 142.0000
x[4] = 27.0000 y[4] = 146.0000
x[5] = 26.0000 y[5] = 139.0000
x[6] = 29.0000 y[6] = 156.0000
x[7] = 32.0000 y[7] = 152.0000
x[8] = 24.0000 y[8] = 161.0000
x[9] = 21.0000 y[9] = 160.0000
Linear regression by least square method is : y = ax + b
=> a = 1.3519451618
=> b = 113.3453826904


Dev-C++ 4.9.9.2
File Edit Search View Project Execute Debug Tools CVS Window Help
New Insert Toggle Goto
Project Classes Debug
PROGRAM EDIT.cpp RESULT.txt
Linear regression by least square method is : y = ax + b
=> a = 1.4
=> b = 113.3


00:08 พฤ. 2 ธ.ค.
กราฟไม่มีชื่อ
desmos
ล็อกอิน
หรือ
x_1 y_1
20 134
23 137
25 142
27 146
26 139
29 156
32 152
24 161
21 160
$y = 1.3519451618x + 113.3453$
250
200
150
100
50
-50
0
50
100