

Final

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(C++/C++ - BCA 6 (B))

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Question 2:

Algorithm:

Step 1: Start

Step 2: Initialize the graphics mode.

Step 3: Construct a 2D object (x, y)

Step 4: Translation

(i) Get the translation value tx, ty

(ii) Move the 2D object with tx, ty
 $(x' = x + tx, y' = y + ty)$

(iii) Plot (x', y')

Scaling

(i) Get the scaling value Sx, Sy

(ii) Resize the object with Sx, Sy

$(x' = x * Sx, y' = y * Sy)$

(iii) Plot (x', y')

Trishull

Rotation

(i) Get the rotation angle.

(ii) Rotate the object by the angle θ

$$x' = x \cos \theta - y \sin \theta$$

$$y' = x \sin \theta + y \cos \theta$$

(iii) Plot (x', y')

Tri-M

Program : algebra notebook add top (i)

algebra add put algebra add algebra (ii)

```
#include <graphics.h>
```

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

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

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

```
void main()
```

```
{
```

```
    int gm;
```

```
    int gd = DETECT;
```

```
    int x1, x2, x3, y1, y2, y3, nx1, nx2,  
        nx3, ny1, ny2, ny3, c;
```

```
    int sx, sy, xt, yt, r;
```

```
    float t;
```

```
    initgraph (&gd, &gm, "c:\\tc\\bg");
```

```
    printf ("Program for transactions");
```

```
    printf ("Enter the points of triangle");
```

```
    setcolor(1);
```

```
    scanf ("%d %d %d %d %d %d", &x1,  
        &y1, &x2, &y2, &x3, &y3);
```


~~Full~~

line (x1, y1, x2, y2);

line (x2, y2, x3, y3);

line (x3, y3, x1, y1);

getch();

printf ("\n 1. Translation 2. Rotation

3. Scaling \n 4. exit);

printf ("Enter your choice:");

scanf ("%d", &c);

switch(c)

{

Case 1:

printf ("\n Enter translation factor");

scanf ("%d %d", &xt, &yt);

nx1 = x1 + xt;

ny1 = y1 + yt;

nx2 = x2 + xt;

ny2 = y2 + yt;

nx3 = x3 + xt;

ny3 = y3 + yt;

line (nx1, ny1, nx2, ny2);

line (nx2, ny2, nx3, ny3);

line (nx3, ny3, nx1, ny1);

Final

getch();

Case 2: printf("\n Enter the angle rotation");

scanf("%d", &n);

t = 3.14 * n / 180;

nx1 = abs(x1 * cos(t) - y1 * sin(t));

ny1 = abs(x1 * sin(t) + y1 * cos(t));

nx2 = abs(x2 * cos(t) - y2 * sin(t));

ny2 = abs(x2 * sin(t) + y2 * cos(t));

nx3 = abs(x3 * cos(t) - y3 * sin(t));

ny3 = abs(x3 * sin(t) + y3 * cos(t));

line(nx1, ny1, nx2, ny2);

line(nx2, ny2, nx3, ny3);

line(nx3, ny3, nx1, ny1);

getch();

Case 3:

printf("\n Enter the scaling factor");

scanf("%d %d", &sx, &sy);

nx1 = x1 * sx;

ny1 = y1 * sy;

Fishull

$nx2 = x2 * sx;$

$ny2 = y2 * sy;$

$nx3 = x3 * sx;$

$ny3 = y3 * sy;$

line (nx1, ny1, nx2, ny2);

line (nx2, ny2, nx3, ny3);

line (nx3, ny3, nx1, ny1);

getch();

Case 4:

break;

default:

printf("Enter the correct choice");

{

closegraph();

}