

University Roll no: 1121162

Subject :- Computer Graphic

Subject Code :- PBC

Program

Ans 1) Hirschfeld 2 graphics 2.5

void main()

2

float x, y, x1, y1, x2, y2, dx, dy,

step, p;

int i = 1, gd = DETECT, gm;

printf("Enter (x1, y1)");

scanf("%f %f", &x1, &y1);

printf("Enter (x2, y2):");

scanf("%f %f", &x2, &y2);

initgraph(&gd, &gm, "");

dx = x2 - x1

dy = y2 - y1

steps = dx - 1;

int pk = (2 * dy) - dx;

p = pk;

x = x1;

y = y1;

while (i <= steps)

2

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```

    2
    putpixel (n, y, BLUE)
        x = x + 1;
        y = y;
        p = p + (e * dy);
        delay (50);
    }
    else
    2
        putpixel (n, y, BLUE);
        x = x + 1;
        y = y + 1;
        p = p + (e * dy) - (e * dx);
        delay (50);
    }
    i++;
}
getch();
closegraph();
}

```

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Bresenham Line Drawing Algorithm

Ans 1)

Step 1 \Rightarrow Start

Step 2 \Rightarrow Declare variable $x_1, x_2, y_1, y_2, d, i_1, i_2, dx, dy$

Step 3 \Rightarrow Enter value of x_1, y_1, x_2, y_2
where x_1, y_1 are coordinates of starting point
And x_2, y_2 are coordinates of ending point

Step 4 \Rightarrow Calculate $dx = x_2 - x_1$
Calculate $dy = y_2 - y_1$
Calculate $pk = 2 \times dy$
Calculate $pkk = 2 \times (dy - dx)$

Step 5 \Rightarrow Consider (x_1, y_1) as starting point and x_{end} as maximum possible value of x
if $dx < 0$, then $x_{end} = x_2 - 1$
 $y = y_1$, $y_{end} = y_1$
if $dx > 0$ then $x_{end} = x_2$
 $y = y_1$, $y_{end} = y_2$

Step 6 \Rightarrow Generate point at (x_1, y_1) coordinates

Step 7 \Rightarrow Check if whole line is generated

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if $x \geq \text{used}$

stop

Step 8 Calculate Coordinates of next fibres

if $d < 0$

then $d = d + 1$;

if $a \geq 0$, then $d = d + i_2$

increment $y = y + 1$

Step 9 : increment $x = x + 1$

Step 10 : Draw point of last (n, y) coordinate

Step 11 : Go to step 7

Step 12 : End of Algorithm