CSE2006 LAB 7

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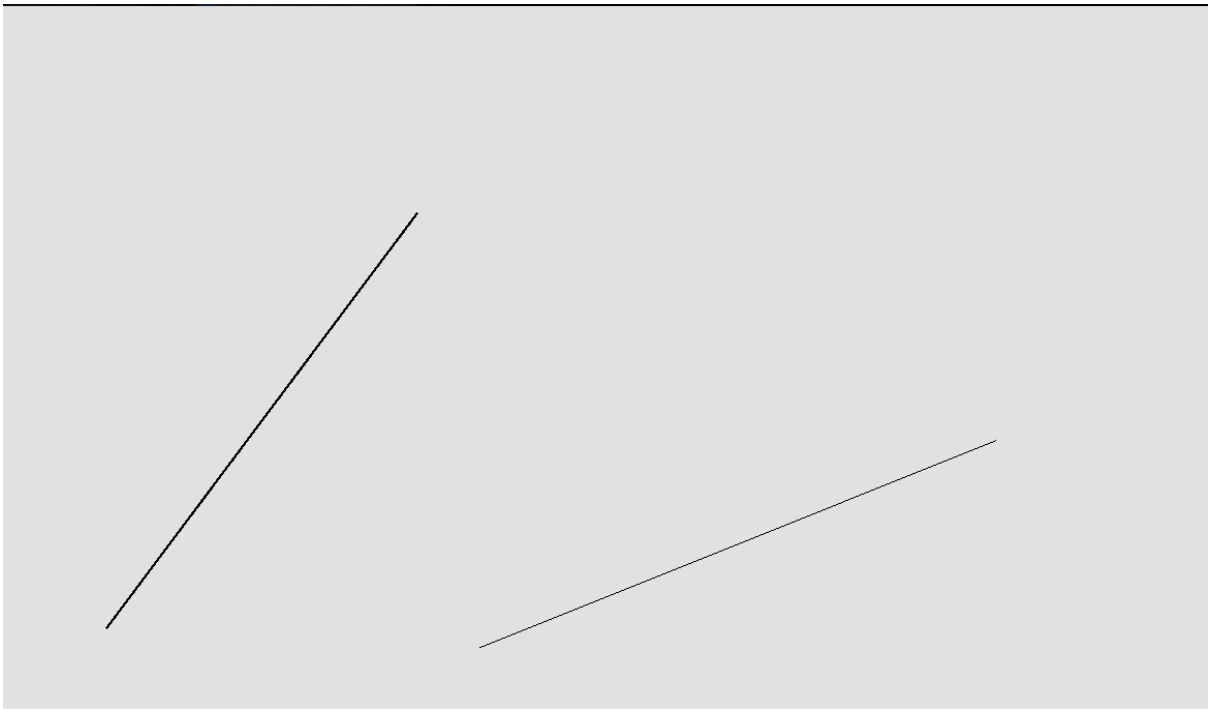
Code:

1. DDA

```
void setup(){
 size(1280,720);
 background(225);
}
DDA dda= new DDA();
void draw(){
line(100,600,400,200);
translate(360,0);
translate(0,300);
dda.make(100,600,400,200,height);
}
class DDA{
DDA(){};
public void make(int x1,int x2, int y1, int y2,int h){
float dx=Math.abs(x2-x1), dy=Math.abs(y2-y1);
float steps=dx<dy?dy:dx;
float xi=dx/steps, yi=dy/steps;
float x=x1, y=y1;
while(x<x2){
x+=xi;
y+=yi;
point(round(x),h-round(y));
}
}
public int round(float x){
if(x*Math.floor(x)*10>5)
return (int)Math.ceil(x);
return (int)Math.floor(x);
}
}
```

OUTPUT:

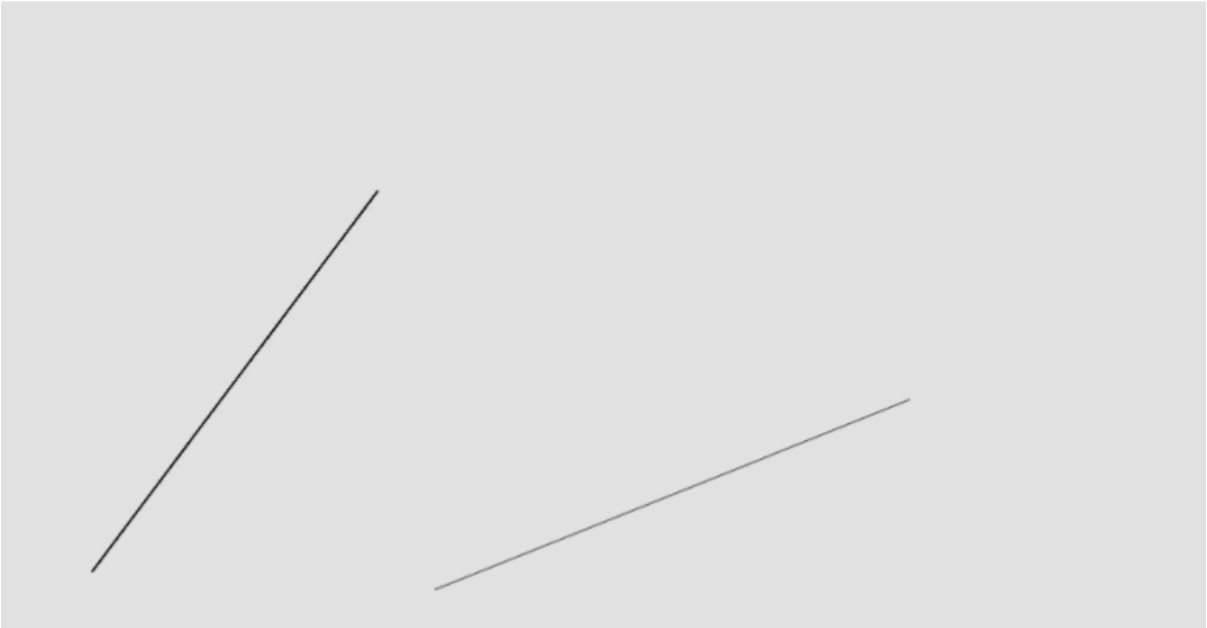


2. Bresenham's (+ve slope)

```
void setup(){
 size(1280,720);
 background(225);
}
Bhams bhams=new Bhams();
void draw(){
line(100,600,400,200);
translate(360,0);
translate(0,400);
bhams.make(100,600,400,200, height);
}
class Bhams{
Bhams(){};
public void make(int x1,int x2, int y1, int y2,int h){
int dx=Math.abs(x2-x1), dy=Math.abs(y2-1);
int i1=2*dy, i2=2*(dy-dx),d=i1-dx;
int x=dx>0?x1:x2;
int y=(dx>0?y1:y2);
int xend=dx<0?x1:x2;
do{
 point(x,h-y);
 d=d<0?(d+i1) : (d+i2);
 y++;
x++;
}while(x<xend);
}
```

```
}
class Bhams{
Bhams(){};
public void make(int x1,int x2, int y1, int y2,int h){
int dx=Math.abs(x2-x1), dy=Math.abs(y2-1);
int i1=2*dy, i2=2*(dy-dx),d=i1-dx;
int x=dx>0?x1:x2;
int y=(dx>0?y1:y2);
int xend=dx<0?x1:x2;
do{
 point(x,h-y);
 point(h-x,h-y);
 d=d<0?(d+i1) : (d+i2);
 y++;
x++;
}while(x<xend);
}
}
```

OUTPUT:



3. Bresenham's (Four quadrants)

```
void setup(){
 size(1280,720);
 background(225);
}
Bhams dda= new Bhams();
void draw(){
line(100,600,400,200);
```

```
translate(360,0);
translate(0,300);
dda.make(100,600,400,200,height);
}
class Bhams{
Bhams(){};
public void make(int x1,int x2, int y1, int y2,int h){
int dx=Math.abs(x2-x1), dy=Math.abs(y2-1);
int i1=2*dy, i2=2*(dy-dx),d=i1-dx;
int x=dx>0?x1:x2;
int y=(dx>0?y1:y2);
int xend=dx<0?x1:x2;
do{
 point(x,h-y);
 point(h-x,h-y);
 d=d<0?(d+i1) : (d+i2);
 y++;
x++;
}while(x<xend);
}
}
```

OUTPUT: