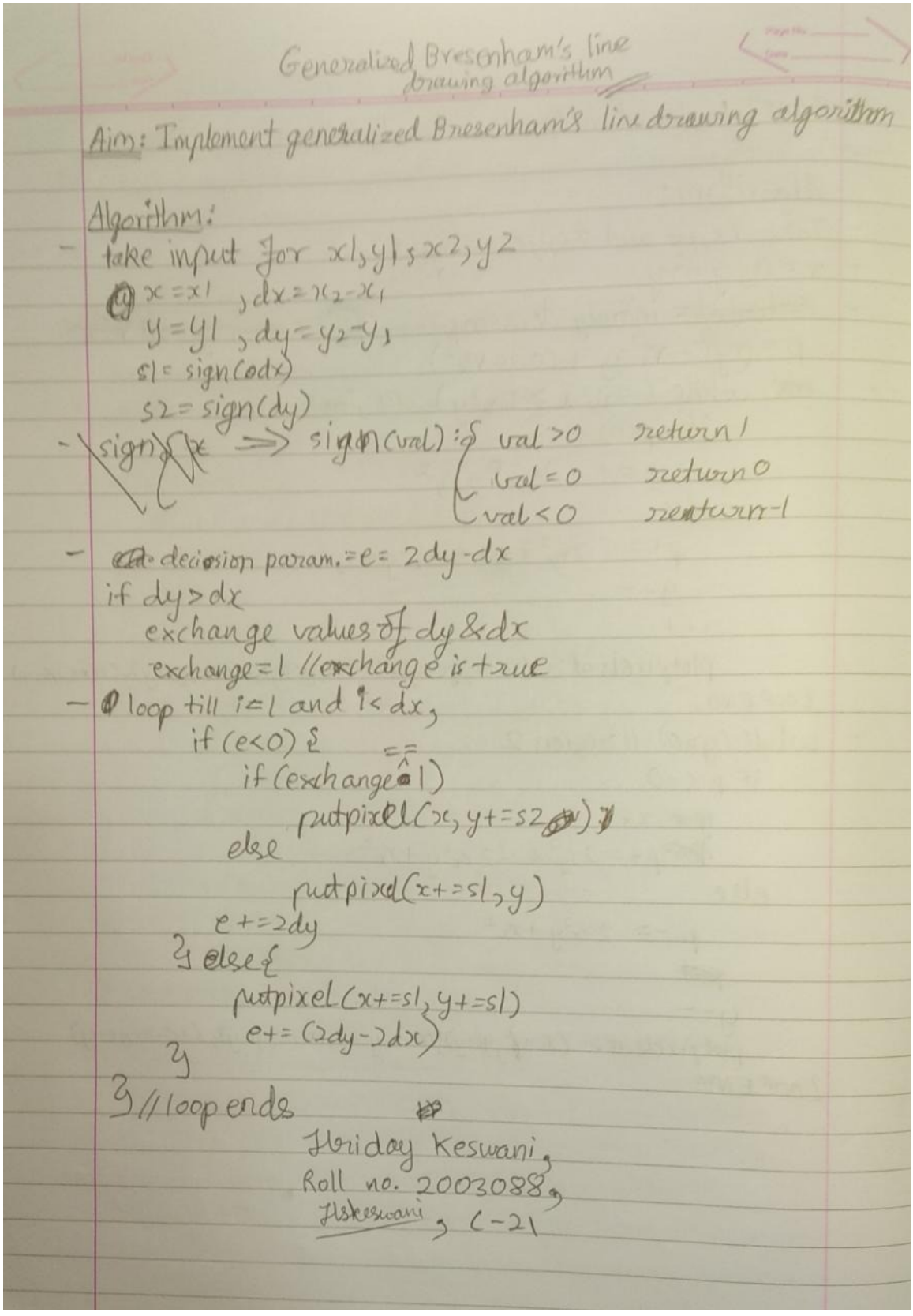
CG-Assignment
Generalized Bresenhams Line drawing Algorithm

Program:
Drawing lines with Generalized Bresenham's line drawing algorithm



Code:

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

int sign(int a){
     if(a<0)
          return -1;
     else if(a>0)
          return 1;
     else
          return 0;
}

void bresenham(int x1, int y1, int x2, int y2){
     int x = x1, y = y1, dx, dy, e, swap = 0, i, s1, s2, temp;
     putpixel(x1, y1, WHITE);
     dx = abs(x2 - x1);
     dy = abs(y2 - y1);
     s1=sign(dx);
     s2=sign(dy);
     e=2*dy-dx;
     if(dy > dx){
          temp = dy;
          dy = dx;
          dx = temp;
          swap = 1;
     }
     for(i = 1;i < dx;i++){
          if(e<0){
               if(swap)
                    putpixel(x, y = y + s2, WHITE);
               else
                    putpixel(x = x + s1, y, WHITE);
               e = e + 2*dy;
          }else{
               putpixel(x = x + s1, y = y + s2, WHITE);
               e = e + 2*dy - 2*dx;
          }
     }
}
void main(){
     int x1, y1, x2, y2;
     int gd = DETECT, gm;
     clrscr();
     initgraph(&gd, &gm,"c://TURBOC3//BGI");
     printf("Enter starting coordinates\n");
     scanf("%d %d",&x1,&y1);
```

```
    printf("Enter ending coordinates\n");
    scanf("%d %d",&x2, &y2);
    bresenham(x1,y1,x2,y2);
    printf("\nHriday Keswani\nRoll no.:2003088\n");
    getch();
    closegraph();
}
```

Output: