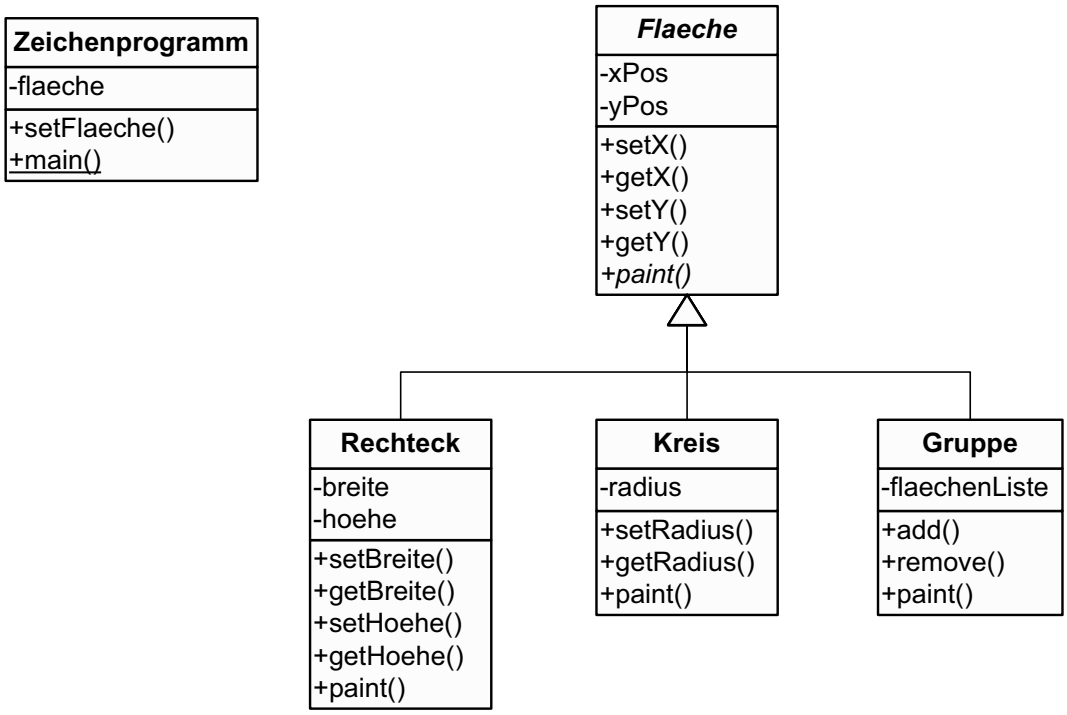
Das Zeichenprogramm

Klassendiagramm



Quellcode

```
public abstract class Flaeche {

   private int xPos;
   private int yPos;


   public Flaeche(int x, int y) {
      setX(x);
      setY(y);
   }
```

```
    public void setX(int x) {
       if (x >= 0) xPos = x;
    }

    public int getX() {
       return xPos;
    }
    public void setY(int y) {
       if (y >= 0) yPos = y;
    }

    public int getY() {
       return yPos;
    }

    public abstract void paint(Graphics g);
}
```

```
public class Rechteck extends Flaeche {
    private int breite;
    private int hoehe;

    public Rechteck(int x, int y,
                    int breite, int hoehe) {
       super(x, y);
       setBreite(breite);
       setHoehe(hoehe);
    }

    public void setBreite(int breite) {
       if (breite > 0) this.breite = breite;
    }

    public int getBreite() {
       return breite;
    }

    public void setHoehe(int hoehe) {
       if (hoehe > 0) this.hoehe = hoehe;
    }

    public int getHoehe() {
       return hoehe;
    }
```

```
    public void paint(Graphics g) {
        g.drawRect(getX(), getY(), breite, hoehe);
    }
}
```

```
public class Kreis extends Flaeche {
    private int radius;

    public Kreis(int x, int y, int radius) {
        super(x, y);
        setRadius(radius);
    }

    public void setRadius(int radius) {
        if (radius > 0) this.radius = radius;
    }

    public int getRadius() {
        return radius;
    }

    public void paint(Graphics g) {
        g.drawOval(getX(),getY(),radius*2,radius*2);
    }
}
```

```
public class Gruppe extends Flaeche {

    private ArrayList<Flaeche> flaechenListe;

    public Gruppe(int x, int y) {
        super (x, y);
        flaechenListe = new ArrayList<Flaeche>();
    }

    public void add(Flaeche... flaechen) {
        for (Flaeche f : flaechen)
            flaechenListe.add(f);
    }
```

```
    public void remove(Flaeche f) {
        flaechenListe.remove(f);
    }

    public void paint(Graphics g) {
        g.translate(getX(), getY());
        for (Flaeche f : flaechenListe) f.paint(g);
        g.translate(-getX(), -getY());
    }
}
```

```
public class Zeichenprogramm extends Frame {

    private Flaeche flaeche;

    public Zeichenprogramm() {
        setSize(360,320);

        add(new Canvas() {
            public void paint(Graphics g) {
                g.setColor(Color.RED);
                if (flaeche != null) flaeche.paint(g);
            }
        });

        addWindowListener(new WindowAdapter() {
            public void windowClosing(WindowEvent e) {
                System.exit(0);
            }
        });

        setVisible(true);
    }

    public void setFlaeche(Flaeche flaeche) {
        this.flaeche = flaeche;
    }

    public static void main(String[] args) {

        Zeichenprogramm z = new Zeichenprogramm();
        Gruppe root = new Gruppe(0,0);
```

```
        Rechteck r = new Rechteck(0,0,100,190);
        Kreis k1 = new Kreis(10,10,40);
        Kreis k2 = new Kreis(10,100,40);
        Gruppe g1 = new Gruppe(50,50);
        g1.add(r, k1, k2);

        Gruppe g2 = new Gruppe(200,50);
        g2.add(r, k1, k2);
        root.add (g1, g2);
        z.setFlaeche(root);
    }
}
```