

程序代写代做 CS编程辅导



# CMT1010 Visual Computing

WeChat: cstutorcs

Image Processing in Java  
Assignment Project Exam Help

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# Overview

- Images in Java
- Read (Load) an image
- Draw an image
- Process an image
- Write (Save) an image

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# Images in Java

- An image is typically a rectangular two-dimensional array of pixels
  - Each pixel represents the color at that position
  - Dimensions represents the horizontal extent (width) and vertical extent (height) as it is displayed.
- Most important image class in Java 2D API
  - `java.awt.image.BufferedImage`
- Image programming tasks:
  - Load an external image file
  - Draw an image onto a drawing surface
  - Manipulate the pixels of an image
  - Save the contents of an image to an external image file

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# Read (Load) an Image

- Use javax.imageio package 程序代写代做 CS编程辅导

```
BufferedImage img = null;  
try {  
    img = ImageIO.read(new File("affodil.jpg"));  
} catch (IOException e) {  
}
```



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# Draw an Image

- Use Graphics function

```
boolean Graphics.drawImage(Image img, int x, int y,  
                             ImageObserver observer);
```



- Example

```
public void paint(Graphics g) {
```

```
    g.drawImage(img, 0, 0, null);
```

```
}
```

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# Process an Image

- The width and height of an image can be obtained by

```
width = img.getWidth()
```

```
height = img.getHeight()
```



- The pixel colour at (x,y) can be retrieved and set by

```
Color pixel = new Color(img.getRGB(x, y));
```

```
img.setRGB(x, y, pixel.getRGB());
```

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# Process an Image

- Example: convert a colour image to a grayscale image

```
for (int y = 0; y < height  
    for (int x = 0; x < width; ++x) {  
        Color pixel = new Color(img.getRGB(x, y));  
        int r = pixel.getRed();  
        int g = pixel.getGreen();  
        int b = pixel.getBlue();  
        r = g = b = (int) (0.299*r + 0.587*g + 0.114*b); //grayscale  
        img_out.setRGB(x, y, (new Color(r, g, b)).getRGB());  
    }  
}
```

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# Write (Save) an Image

- Use javax.imageio package 程序代写代做 CS编程辅导

```
try {
```

```
    ImageIO.write(in, "jpg", new File("DaffodilG.jpg"));
```

```
} catch (IOException ex) {
```

```
}
```



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# Summary

- What is an image?
- What is a pixel?
- How to load and save an image?
- How to draw an image?
- How to access and set the pixels of an image?

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