Proxy

A kind of memory buffer, saves bandwidth by saving things in a cache.

HashMap is a list of unique elements

```java
private HashMap<String,Image> p = new HashMap<String,Image>();
```

Downloading an image from the Internet

```java
public void downloadImage(String url) {
// Use a try/catch in case the URL is invalid
    try {
        realurl = new URL(url);

        // Read an image from the URL
        Image img = ImageIO.read(realurl);

        // Put the image in the list
        p.put(url, img);

        getImage(url);
    } catch (MalformedURLException e) {
        // Runs if the URL is invalid
        e.printStackTrace();
    } catch (IOException e) {
        // Runs on an I/O error (error connecting to the Internet)
        e.printStackTrace();
    }
}
```

Use a buffer to save bandwith, check if the image is already in the HashMap

```java
public Image getImage(String url){

    // Check if the image is already in the HashMap, download and add if not
    if(p.containsKey(url) == false) {
        downloadImage(url);
    }

    // Get image from HashMap, return it
    Image img = this.p.get(url);
    return img;
}
```