Name: Baihan Lin

UWID: sunnylin, 1360521

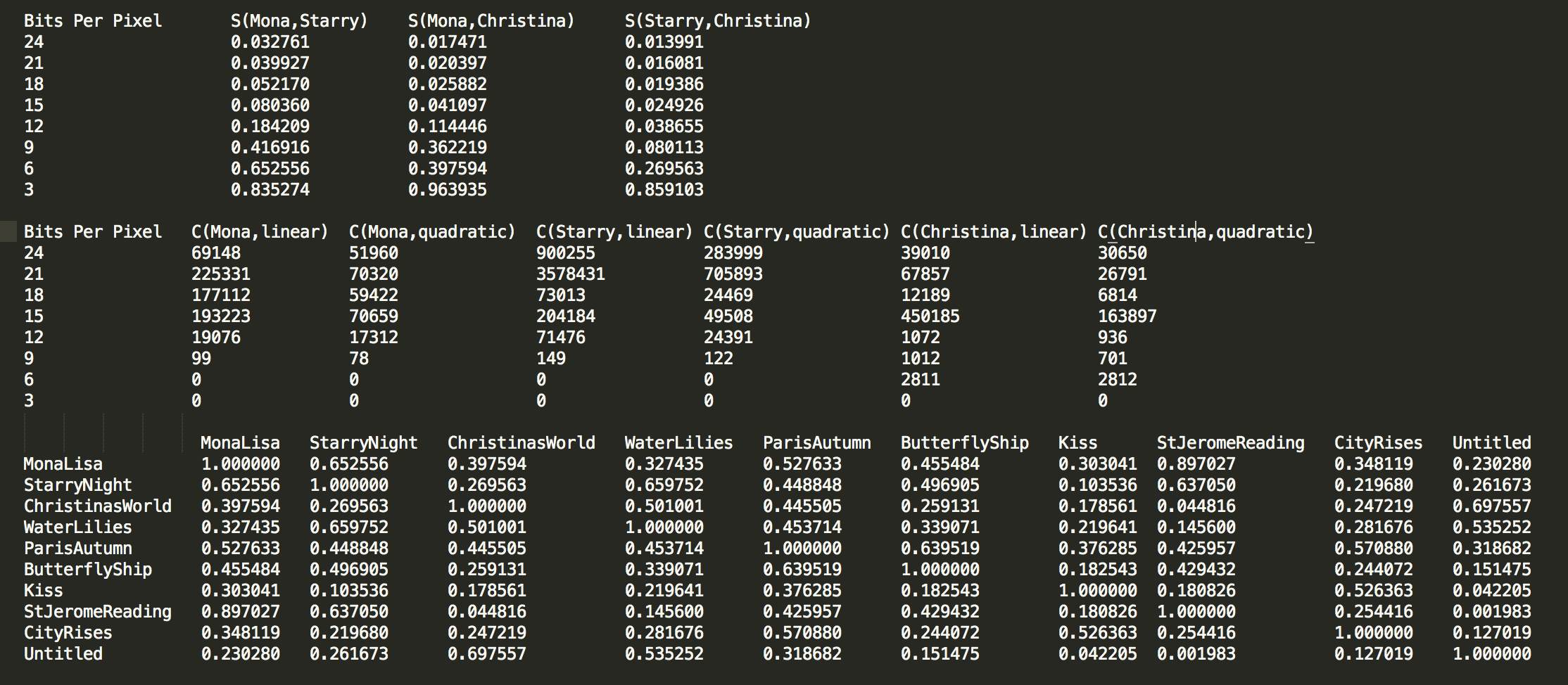
Section: BC

1. Describe your approach to implementing the hash table. (separate arrays for keys and values vs one array with objects that represent pairs.)

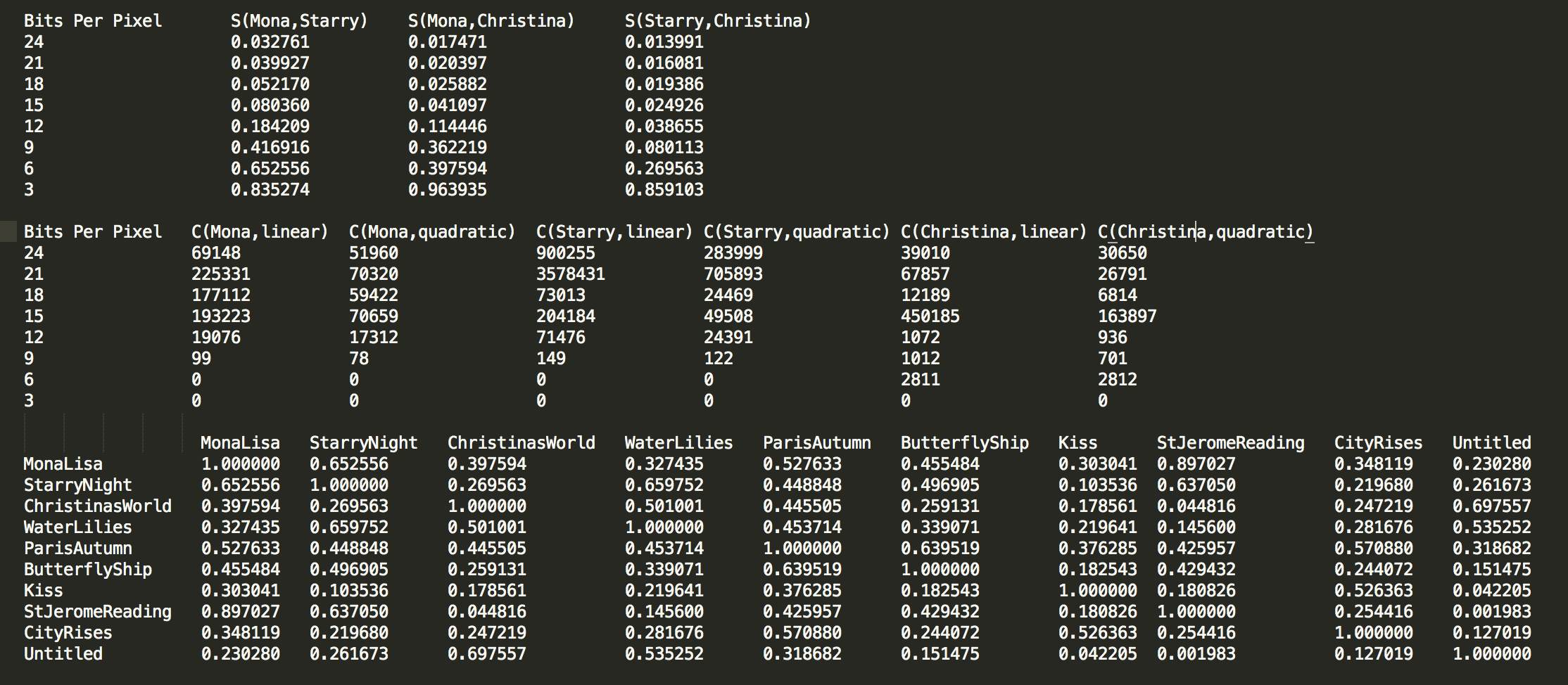
2. If you implemented any methods other than those in the specification, describe them briefly here.

3. When you use 6 bits per pixel, how many black pixels are there in the Mona Lisa image? (These are the pixels whose ColorKey bits value equals 0.)

4. Provide a copy of the table of counts produced by your collisionTests method.

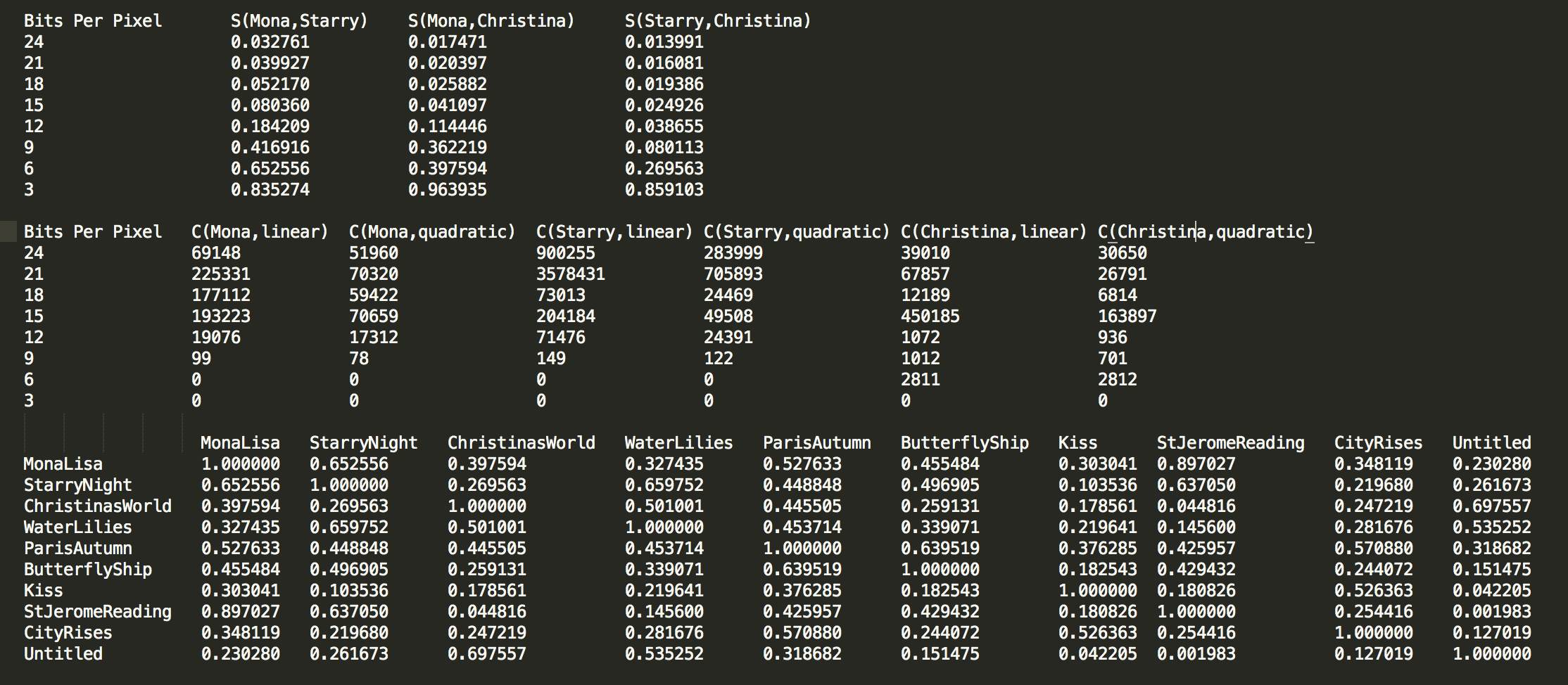


5. Provide a copy of the table of similarity values by your fullSimilarityTests method.



6. Examine the hashCode method of class ColorKey. What types of images might tend to cause lots of collisions relative to other images?

7. Extra Credit: Cosine similarity of 10 different images

Table of cosine similarity based on output from Java Eclipse console:

As we can see from the table, C(MonaLisa, StJeromeReading) = 0.897027 is the most similar image pair with the maximum cosine similarity. Visually speaking, “Mona Lisa” and “St. Jerome Reading”

**Image Summary:**

1. “Mona Lisa” by Leonardo Da Vinci

<https://courses.cs.washington.edu/courses/cse373/16au/A/A3/>

1. “Starry Night” by Vincent Van Gogh

<https://courses.cs.washington.edu/courses/cse373/16au/A/A3/>

1. “Christina’s World” by Andrew Wyeth

<https://courses.cs.washington.edu/courses/cse373/16au/A/A3/>

1. “Water Lilies” by Claude Monet

<http://www.jenniferlynking.com/wp-content/uploads/2013/09/waterlilies_0410_-367.jpg>

1. “Paris Autumn” by Dmitry Spiros

<https://img1.etsystatic.com/074/0/7777713/il_570xN.823315899_kot1.jpg>

1. “Butterfly Ship” by Salvador Dali

<http://www.wallpaperawesome.com/wallpapers-awesome/wallpapers-famous-painting-artist-painter-brush-oil-on-canvas-awesome/wallpaper-salvador-dali-1.jpg>

1. “Kiss” by Gustav Klimt

<https://uploads8.wikiart.org/images/gustav-klimt/the-kiss-1908(1).jpg>

1. “St. Jerome Reading” by Georges de La Tour

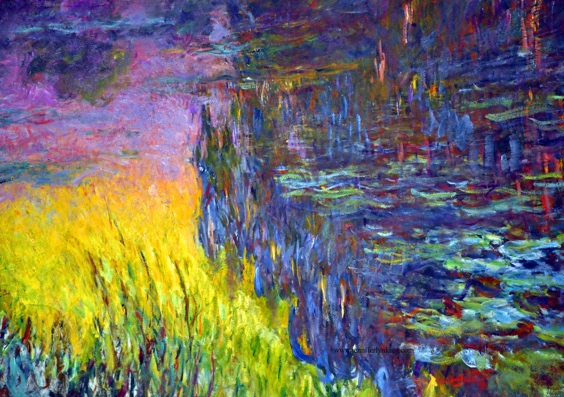
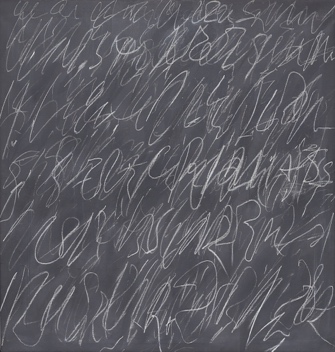
<http://www.abcgallery.com/L/latour/latour66.JPG>

1. “City Rises” by Boccioni

<http://exhibitions.guggenheim.org/futurism/content/small/futurism_heroic_boccioni_the_city_rises.jpg>

1. “Untitled” by Cy Twombly

<https://news.artnet.com/app/news-upload/2015/02/2015-feb-11-cy-twombly-untitled-new-york-city-1970-christies-evening-auction.jpg>

**4 5 6**

**7 8 9 10**

**1 2 3**