COMP-SCI 5542 (SP17) - Big Data Analytics and Applications

Tutorial 6 Assignment (Due 03/01/17 by 11:59 PM)

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1. Spark Programming

1.1. Dataset Justification

Based on the Plutchik's Wheel model of eight basic emotions of creatures[1], I attempted to vector the extreme emotions which locate a the corners of the octagon. I used simple emoji impressions as the image files to train and test the data. Figure 1 demonstrates all the "standard" emotions.

(a) (b) (c) (d) (e) (f) (g) (h)

Figure 1. Standard emoji impressions for the eight corners in Pluchik's wheel. (a) Anger; (b) Anticipation; (c) Disgust; (d) Fear; (e) Joy; (f) Sadness; (g) Surprise; (h) Trust.

1.2. Screenshots of the Programming Result

1.2.1. Decision Tree Model (see Figure 2)

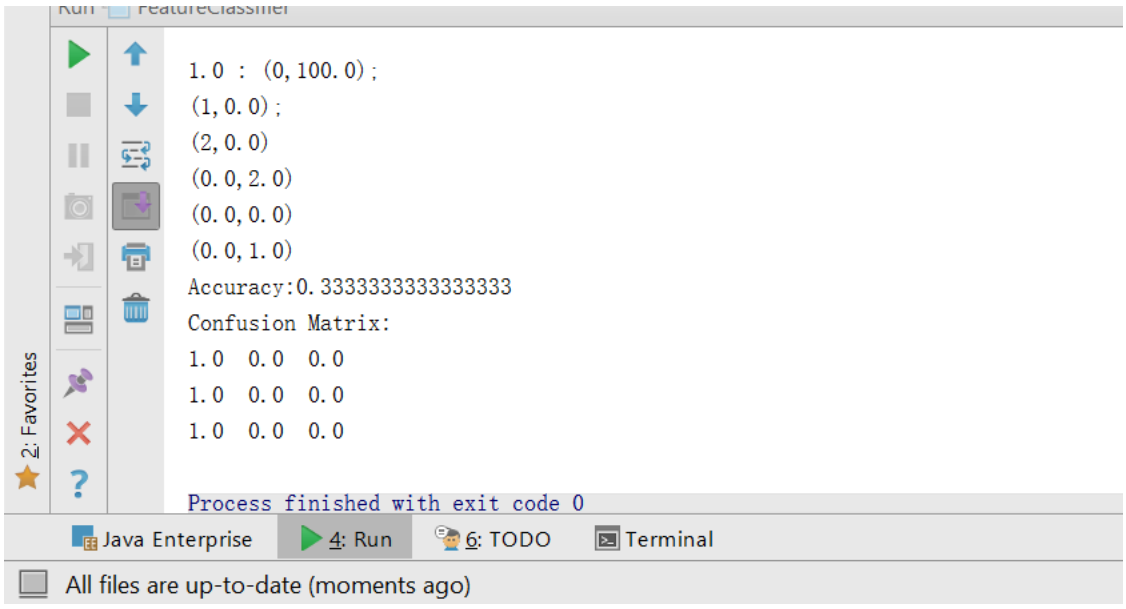

Figure 2. Screenshot of programming result for the *decision tree* model.

1.2.2. Random Forest Model (see Figure 3)

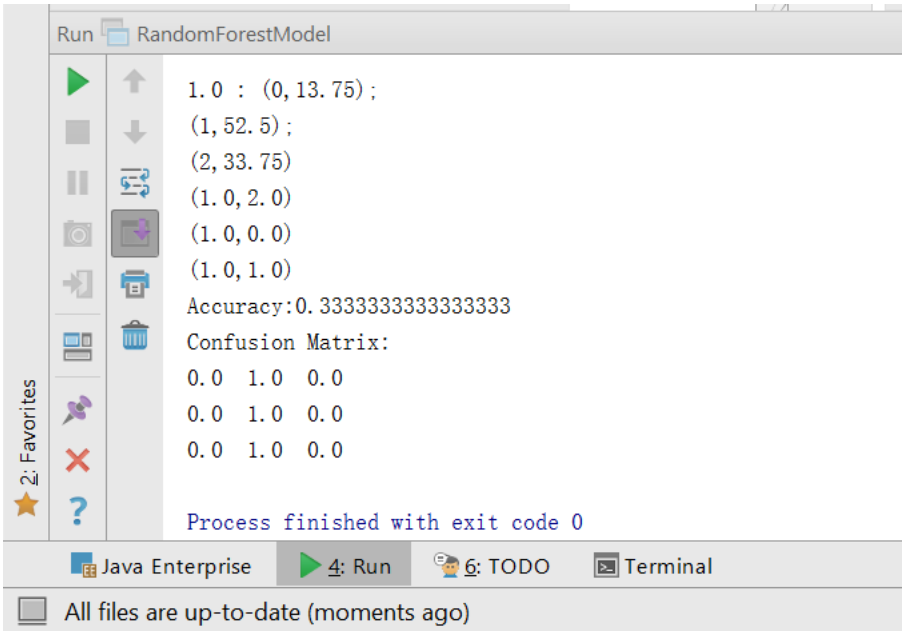

Figure 3. Screenshot of programming result for the *random forest* model.

2. Android Application Programming

2.1. Code Example

```
final Button image_classify_button = (Button) findViewById(R.id.send);
image_classify_button.setOnClickListener(new View.OnClickListener() {
    public void onClick(View v) {
        BitmapFactory.Options options = new BitmapFactory.Options();
        options.inJustDecodeBounds = true;
        Bitmap bitmap = ((BitmapDrawable) imageView.getDrawable()).getBitmap();
        ByteArrayOutputStream baos = new ByteArrayOutputStream();
        bitmap.compress(Bitmap.CompressFormat.JPEG, 100, baos); //bm is the bitmap object
        img = baos.toByteArray();
    }
});
```

2.2. Screenshot