# CS1026b Extra Exam Material

## Strings

To compare two strings: `s1` and `s2` do

```
s1.equals(s2)
```

To get a length of a string do

```
s1.length()
```

To access a character (single letter) of string `s1` do

```
s1[i]
```

where $0 \leq$ `i` $<$ `st.length()`.

## Worlds

`World()`
Constructor that takes no arguments.

`World(int w, int h)`
Constructor that takes a width and height for the world.

## Turtles

### Partial Constructor Summary

`Turtle(int x, int y, World world)`
Constructor that puts the turtle at position (x,y) in its world, facing up (toward the top of the world)

`Turtle(World world)`
Constructor that puts the turtle at the center of its world, facing up (toward the top of the world)

### Partial Method Summary

`void backward(int pixels)`
Method to go backward a given number of pixels

`void forward(int pixels)`
Method to move the turtle forward the given number of pixels

`int getXPos()`
Method to get the current x position

`int getYPost`
Method to get the current y position

`void hide()`
Stop showing the turtle; does not affect the pen status

`void moveTo(int x, int y)`
Method to move to turtle to the given x and y location

`void penDown()`
Method to set the pen down

`void penUp()`
Method to lift the pen up

`void show()`
Make the turtle visible; does not affect the pen status

`void turn(int degrees)`
Method to turn the turtle the passed degrees use negative to turn left and pos to turn right

`void turnLeft()`
Method to turn left 90 degrees

`void turnRight()`
Method to turn right 90 degrees

`void turnToFace(int x, int y)`
Method to turn towards the given x and y

`void turnToFace(SimpleTurtle turtle)`
Method this turtle object to face the parameter turtle

## Pictures

### Partial Constructor Summary

`Picture()`
Constructor that takes no arguments

`Picture(int width, int height)`
Constructor that takes the width and height

`Picture(java.lang.String fileName)`
Constructor that takes a file name and creates the picture

### Partial Method Summary

`int getHeight()`
Method to get the height of the picture in pixels

`Pixel getPixel(int x, int y)`
Method to get a pixel object for the given x and y location

`Pixel[] getPixels()`
Method to get a one-dimensional array of Pixels for this

simple picture

`int getWidth()`
Method to get the width of the picture in pixels

`void repaint()`
Method to force the picture to redraw itself.

`void show()`
Method to show the picture in a picture frame

## Pixel

`java.awt.Color getColor()`
Method to get a color object that represents the color at this pixel

`int getRed()`
`int getBlue()`
`int getGreen()`
Method to get the amount of red, blue, or green (respectively) at this pixel. The value will be between 0 (indicating no red/blue/green) and 255 (indicating maximum amount of red/blue/green).

`int getX()`
Method to get the x location of this pixel.

`int getY()`
Method to get the y location of this pixel.

`void setColor(java.awt.Color newColor)`
Method to set the pixel color to the passed in color objec

`void setRed(int value)`
`void setBlue(int value)`
`void setGreen(int value)`
Methods to set the red, blue, or green (respectively) to a new value in [0, 255].

## SimpleInput

`String getString`
Prompts the user to input a string.

`double getNumber`
Prompts the user to input a number.

## The Student Class

```java
public class Student {
    //Attributes
    private String name;
    private int studentID;

    //Constructors
    public Student(String theName, int theID) {
        this.name = theName;
        this.studentID = theID;
    }

    //Methods
    //Returns the student ID of a student
    public int getID() {
        return this.studentID;
    }

    //Tests if two Student objects are the same
    public boolean equals(Student otherStudent) {
        if (otherStudent == null) {
            return false;
        } else if (studentID == otherStudent.getID() ) {
            //student ID's are the same so:
            return true;
        } else {
            //student ID's are different so:
            return false;
        }
    }
}
```