Topic Notes: Java and ObjectDraw Reference

Objectdraw Library

Methods to define in classes that `extend WindowController`

```
void begin();
void onMouseClick(Location point);
void onMousePress(Location point);
void onMouseRelease(Location point);
void onMouseEnter(Location point);
void onMouseExit(Location point);
void onMouseDrag(Location point);
void onMouseMove(Location point);
```

Drawable Objects

Constructors:

```
FramedRect(double x, double y, double width, double height, DrawingCanvas canvas);
FramedRect(Location cornerLoc, double width, double height, DrawingCanvas canvas);
FilledRect(double x, double y, double width, double height, DrawingCanvas canvas);
FilledRect(Location cornerLoc, double width, double height, DrawingCanvas canvas);
FramedOval(double x, double y, double width, double height, DrawingCanvas canvas);
FramedOval(Location cornerLoc, double width, double height, DrawingCanvas canvas);
FilledOval(double x, double y, double width, double height, DrawingCanvas canvas);
FilledOval(Location cornerLoc, double width, double height, DrawingCanvas canvas);
Text(String text, double x, double y, DrawingCanvas canvas);
Text(String text, Location baseLoc, DrawingCanvas canvas);
Line(double startX, double startY, double endX, double endY, DrawingCanvas canvas);
Line(Location startLoc, Location endLoc, DrawingCanvas canvas);
```

Methods for All Drawable Classes:

```
boolean contains(Location someLocation);
Color getColor();
```

```
void setColor(Color someColor);
void move(double xOffset, double yOffset);
void moveTo(double x, double y);
void moveTo(Location someLocation);
void hide();
void show();
boolean isHidden();
void removeFromCanvas();
void addToCanvas (DrawingCanvas c);
void sendForward();
void sendToFront();
void sendBackward();
void sendToBack();
```

Methods for Lines only:

```
Location getStart();
Location getEnd();
void setStart(Location someLocation);
void setEnd(Location someLocation);
void setEndPoints(Location startLocation, Location endLocation);
void setEndPoints(double startX, double startY, double endX, double endY);
```

Methods for Rectangles, Ovals, VisibleImage, and Text

```
double getX();
double getY();
Location getLocation();
double getWidth();
double getHeight();
```

Methods for Rectangles, Ovals, and VisibleImages only:

```
void setWidth(double width);
void setHeight(double height);
```

Methods for Text objects only:

```
void setText(String text);
void setFontSize(int pointSize);
void setBold(boolean makeBold);
void setItalic(boolean makeItalic);
void setPlain();
void setFont(Font someFont);
void setFont(String fontName);
```

ActiveObject**s**

Constructor should call `start()`, which will launch a new Java thread and will execute:

```
void run();
```

as provided by the class.

To make a thread wait for `timeInMillis` milliseconds:

```
void pause(double timeInMillis);
```

Objectdraw Auxiliary Classes

`Location` class:

```
Location(double x, double y);
double getX();
double getY();
void translate(double dx, double dy);
double distanceTo(Location other);
```

`RandomIntGenerator` class:

```
RandomIntGenerator(int min, int max);
int nextValue();
```

`RandomDoubleGenerator` class:

```
RandomDoubleGenerator(double min, double max);
double nextValue();
```

Builtin Java Classes

Color class

```
Color(int redness, int greenness, int blueness);
int getRed();
int getGreen();
int getBlue();
```

Random class

```
Random();
int nextInt();
int nextInt(int numPossible);
double nextDouble();
boolean nextBoolean();
```

String class

```
String();
char charAt(int index);
int compareTo(String other);
boolean equals(Object otherString);
int indexOf(int charToFind);
int indexOf(int charToFind, int startAtIndex);
int lastIndexOf(int charToFind);
int lastIndexOf(int charToFind, int startAtIndex);
int length();
boolean startsWith(String prefix);
String substring(int beginIndex, int endIndex);
String toLowerCase();
String toUpperCase();
```

ArrayList class

For an `ArrayList` that contains object of some type `T`:

```
ArrayList<T>();
boolean add(T element);
void add(int index, T element);
```

```
void clear();
boolean contains(Object element);
T get(int index);
int indexOf(Object element);
T remove(int index);
boolean remove(Object element);
T set(int index, T element);
int size();
```

Scanner **class**

Constructors:

```
Scanner(System.in);
Scanner(new File("someFileToRead"));
```

Methods:

```
boolean hasNext();
String next();
boolean hasNextLine();
String nextLine();
boolean hasNextInt();
int nextInt();
boolean hasNextDouble();
double nextDouble();
```