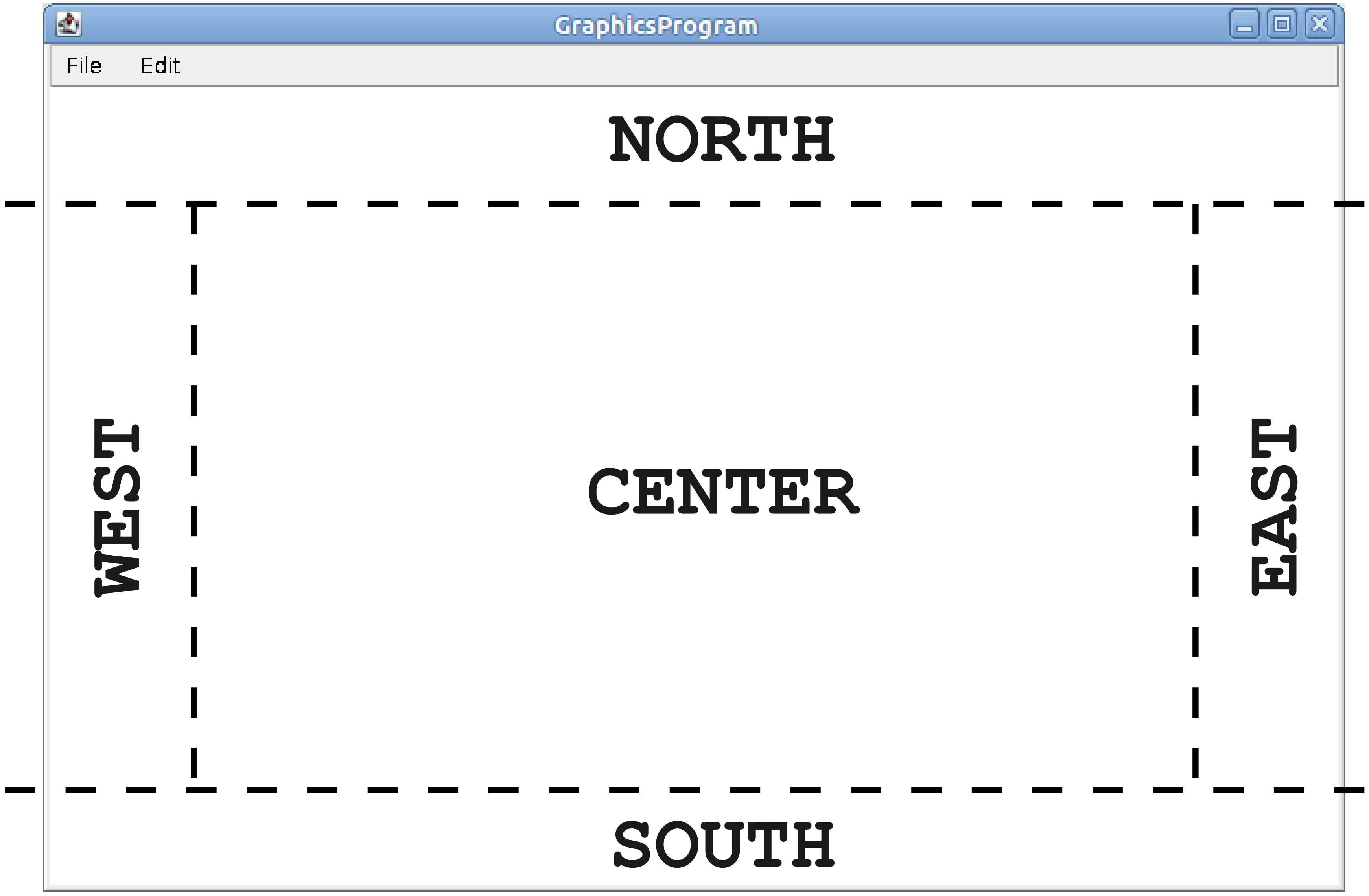
Interactors

Anatomy of a Window



Introducing Interactors

- An **interactor** is a widget that can be added to a window.
- The user can then interact with the program through the interactors.

Adding Interactors

- To use most interactors, you will need to

```
import acm.gui.*;
import javax.swing.*;
```

- You can add an interactor to the appropriate part of the window by calling

  `add(`*interactor*`,` *location*`);`

- *location* can be **`NORTH`**, **`SOUTH`**, **`EAST`**, or **`WEST`**.

The Shocking Exposé

Structuring a Program

- Inside **`init`**:
  - Create interactors.
  - Add interactors to the program.
- Inside **`run`**:
  - Set up any graphics, state, etc.
  - Run the program.

Slider Controls

- The **`JSlider`** control lets the user visually choose from a range of integers.
- Constructor:

```
new JSlider(min, max, initial)
```

- To construct a vertical slider bar:

```
new JSlider(SwingConstants.VERTICAL,
                min, max, initial)
```

Time-Out for Announcements!

CS Casual Dinner

- Second biquarterly CS Casual Dinner for Women in Computer Science is tonight at 6PM in Gates 519.
- Everyone is welcome; highly recommended!
- Keith's office hours shortened to 4:30PM – 6:00PM tonight.

Second Midterm Exam

- Second midterm exam one week from today: **Wednesday, March 5** from 7PM – 10PM.
- Topics covered: up through and including today's lecture on interactors.
- Review session: **Sunday, March 2** from 1PM – 3PM in Hewlett 200.
- Alternate exam requests due at 3:15PM today.
  - Contact us *immediately* if you need to take an alternate exam and haven't done so yet.
  - We'll email back information on the alternate exam by tomorrow night.

Assignment 5

- Assignment 5 due Friday.
- Questions?
  - Stop by the LaIR!
  - Ask on QuestionHut!
  - Email your section leader!
  - Stop by Vikas's or Keith's office hours!

Back to CS106A!

Buttons

- The **`JButton`** type represents a button.
- You can create one using

```
new JButton(label)
```

Responding to Commands

- As with mouse events, responding to interactor events requires two steps.
- Tell Java that you want to respond to commands by calling

```
addActionListeners();
```

- Respond to events by writing a method

```
public void actionPerformed(ActionEvent e)
```

Determining the Cause

- You can tell where an **`ActionEvent`** came from in one of two ways:
- Calling **`e.getActionCommand()`**, which returns a string containing the name of the source.
  - Most common use case: the name of the **`JButton`** that was clicked.
- Calling **`e.getSource()`**, which returns a reference to the interactor that caused the event.

Text Input

- Three common text input controls:
- **`JTextField`**
  - Takes in any text as input.
- **`IntField`**
  - Only accepts **`int`** values; will prompt if you give bad data.
- **`DoubleField`**
  - Only accepts **`double`** values; will prompt if you give bad data.

Responding to Text

- If the user presses ENTER or RETURN in a text box, you will not automatically be notified of this.
- One way to get notification:

```
text.addActionListener(this);
```

- Can then use `e.getSource()` to find the text box.
- Once you've done the above, you can also

```
text.setActionCommand(command-string);
```

- Can then use `e.getActionCommand()` to find the text box.