

# CS 2334: Project 4

# Graphical User Interfaces

# Project 3 Lessons

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- Class hierarchies
- Code reuse through abstract classes
- Handling variables that haven't been defined ahead of time
- Maps for quick lookup of sub-objects

# Project 4

Enable the user to explore the data:

- Select single station
  - Select single variable
  - Select one or more years
- 
- Display maximum, average and minimum for the selected data

File

Select Station:

ACME	ADAX	ALTU	ALV2	ALVA
ANT2	ANTL	APAC	ARD2	ARDM
ARNE	BBOW	BEAV	BEEB	BESS
BIXB	BLAC	BOIS	BOWL	BREC
BRIS	BROK	BUFF	BURB	BURN
BUTL	BYAR	CALV	CAMA	CARL
CATO	CENT	CHAN	CHER	CHEY
CHIC	CLAR	CLAY	CLOU	CLRM
COOK	COPA	DURA	ELRE	ERIC
EUFA	FAIR	FITT	FORA	FREE
FTCB	GOOD	GRA2	GRAN	GUTH
HASK	HECT	HINT	HORA	HOLD

Select Variable:

2MAX	2DEV	2AVG	HDEG	HTMX
TAVG	BAVG	SAVG	TMAX	WSMN
HMIN	MSLP	SMAX	DMIN	WMAX
CDEG	9AVG	ATOT	BMIN	BMAX
VDEF	WSMX	AMAX	PMIN	DMAX
PAVG	TMIN	PMAX	RAIN	2MIN
HAVG	WDEV	WSPD	SMIN	DAVG
HMAX	WCMN			

Select Year(s):

All	1994	1995	1996	1997	1998
	1999	2000			

Station:

ACME

Acme

Rush Springs

Variable:

BMIN

degrees Fahrenheit

Lowest 15-minute averaged soil temperature observation each day.

Maximum:

86.110000

on 8/3/1998

Average

56.981771

Minimum:

28.040000

on 2/4/1996

- Demonstration ....

# Objectives

## Create a Graphical User Interface

- Drop-down menus (JMenuBar)
- Allow user to select from a list of possible items (JList)
- Components to display textual data (JLabel, JTextField, etc.)
- Listeners to respond to user selections (ActionListeners and SelectionListeners)

# “Back End” is Largely the Same

Statistics methods become:

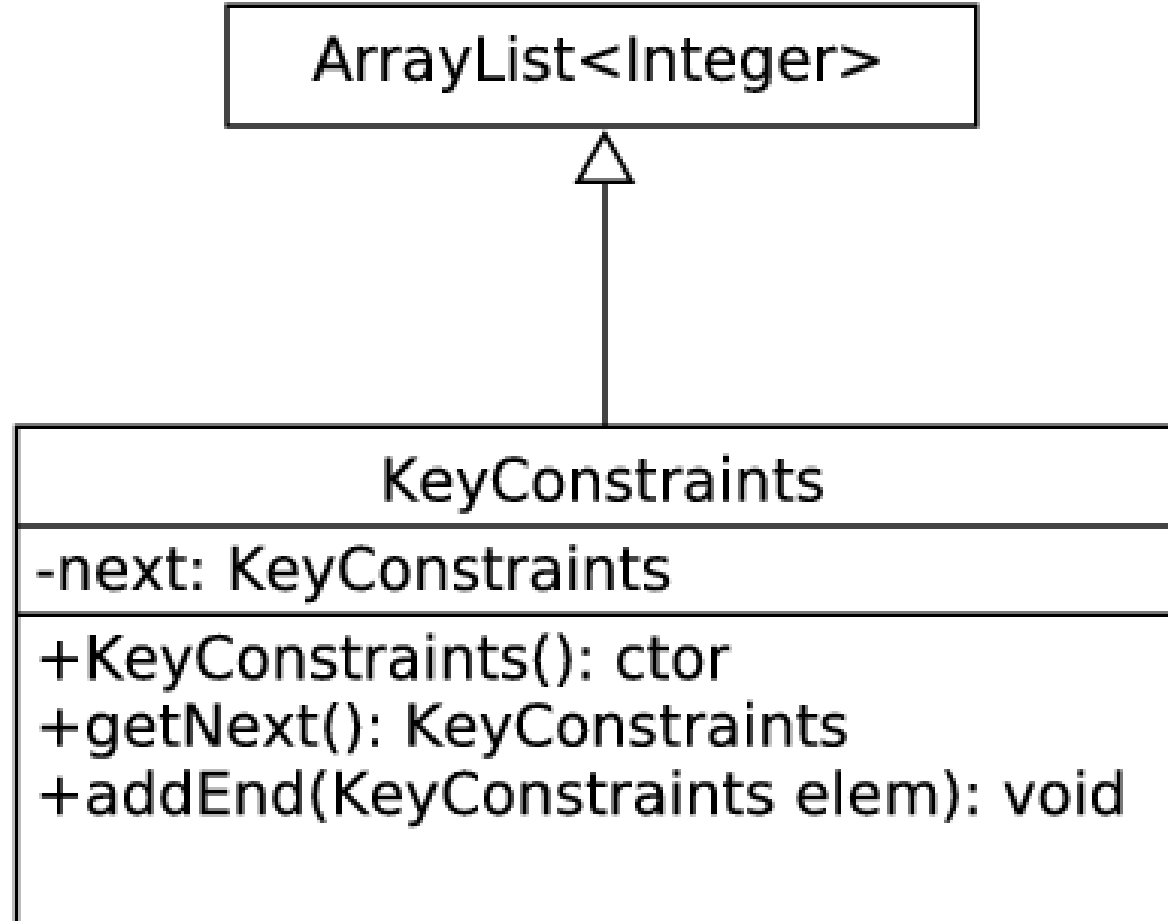
```
public DataDay getStatisticMinDay(String statisticId,  
    KeyConstraints constraints)
```

```
public DataDay getStatisticMaxDay(String statisticId,  
    KeyConstraints constraints)
```

```
public Sample getStatisticAverage(String statisticId,  
    KeyConstraints constraints)
```



# Linked List of Constraints



# Constraints

- DataDay: ignore constraints
- Not MultiStatisticsAbstract classes:
  - Just pass the constraints to the next level without change
- MultiStatisticsAbstract classes:
  - If null, then use all of the available keys
  - Otherwise, only use those available keys that are also in the constraint ArrayList
    - Pass constraints.next() to the sub-objects' statistics methods

# Notes

- Many hints in the specification
- You have to read the Java API in many cases...
  
- Implement and test incrementally

# Deadlines

- Project must be submitted by Monday, Nov 14<sup>th</sup> @1:29pm
- Code review must be completed by Monday, Nov 21<sup>st</sup>
  - But don't wait this long (better to have feedback as you are going into project 5)