

CMPSC 111
Introduction to Computer Science I
Fall 2013
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Recitation 12
21–22 November 2013
Due in Sakai by midnight
“Checkmark” grade

Summary

Wrapper classes.

Wrapper Classes

There are several special classes in Java called “wrapper” classes. They “wrap” a primitive data value into an object (i.e., a reference data type). For instance,

```
...
Integer i, j;
Double x,y;

i = 10;
j = 20;
x = 12.5;
y = -3.14;
...
```

We sometimes need to use a wrapper class rather than a primitive to get around other Java restrictions. For instance, `ArrayLists` must have a reference data type. It is illegal to create an `ArrayList<int>` object, but `ArrayList<Integer>` is legal.

Write a Java program to create three `ArrayLists`, one of type `Integer`, one of type `Double`, and one of type `Character`. Store some values in these lists, then print them back out. (Practice using the “for next” loop structure!)

There is one other use for wrapper classes—we sometimes have a `String` value that contains useful numeric information. But how can we extract numeric data from a string? Answer: there are “parse” methods in the wrapper classes. Example:

```
...
String x = "3.14159"; // a string containing only numbers
double y = Double.parseDouble(x); // extracts the numeric data
```

```
String p = "-321"; // a string containing only numbers
int q = Integer.parseInt(p); // extracts the numeric data
...
```

Try these out—write some code that inputs strings consisting of numbers, then converts these strings into numeric data and computes something with them.

At the end of the period, or by midnight of the day of your recitation, upload the file you just created.

If you were unable to complete the exercise and have nothing to upload, please send me an email with the subject line “Recitation 12” and tell me what problems you encountered so that I can help you. (Actually, email me if you had any problems or questions, even if you uploaded something.)

General Guidelines for Recitation Sessions

- **Experiment!** Recitation sessions are for learning by doing without the pressure of grades or “right/wrong” answers. So try things! The best way to learn is by trying things out.
- **Submit *something*.** Your grade is just 0 or 1, depending on whether or not you attempt the work and upload something to Sakai.
- **Try to Finish During Class.** Recitation exercises are not intended to be the equal of laboratory assignments. If you are simply a slow typist, I’ve given you until the end of the day, but ideally you should upload a file, even a non-working one, by the end of the class period and be finished with it.
- **Help One Another!** If your neighbor is struggling and you know what to do, offer your help. Don’t “do the work” for them, but advise them on what to type or how to handle things.
- **Review the Honor Code policy on the syllabus.** Remember that you may discuss programs with others, but programs that are nearly identical to others will be taken as evidence of violating the Honor Code.