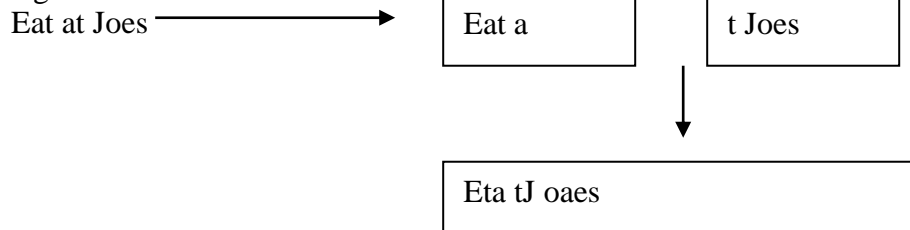


Unit 1.2 – Using Java Classes - Exercises

1. Mrs Rankin is very concerned about the use of swear words on the computer. She feels the situation has gotten out of control and she wants me to handle it in an automated fashion. Because I don't like seeing swear words even in programs I think it's best if we simply get rid of all four letter words. Create a program that reads in one line from the user and repeats the line back with all four-letter words removed. **Save as StringEx1.java**

2. Although I never swear, I feel bad for those who will now have all of their swear words censored. So many students will be unable to fully express their feelings. To help them out we should encrypt their messages. We will use a simple system where cut each line in half and build a new line by interleaving the letter from each half.

e.g.



If you have an odd number of letters just tack the last one on the end. **Save as StringEx2.java**

3. Integer.parseInt() takes a string and returns an integer if the string is a valid integer.

For Example:

Integer.parseInt("123") returns 123

Integer.parseInt("123x") crashes

Create a program that reads a single line from the user, strips out all non-numbers, converts it to an integer then prints it. My stripping out all non-numbers I mean:

"4 score and 7 years ago" → "47" **Save as StringEx3.java**

4. Create a program that takes the users 8 marks from last year, displays them in order and tells them how much above or below their average the mark is.

Save as ArrayEx1.java

5. Historians have just discovered that the universe started one day earlier than they originally thought, so all of our dates are actually off by one. Create a program to help with this transition. Your program will read in a line from the user and output that line with any days of the week references fixed. Every day reference should advance forward one day. e.g.

Save as ArrayEx2.java

in: "We watched Friday night lights last Wednesday, it was pretty good."

out: "We watched Saturday night lights last Thursday, it was pretty good."

6. One way to get random numbers in Java is to make a Random object then ask it for random numbers. It looks like:

```
Random rand = new Random();           // only need to make one Random object

int die = rand.nextInt(6)+1;          // nextInt(6) will return 0-5, so I add
                                     // one to make it act like a die

double mark = rand.nextDouble()*50+50;
// nextDouble returns a double in the range 0.0 to 1.0. When I'm making up
// random marks I want the range 50-100.
```

I have a perfectly square 30m x 30m backyard. My wife bought 10 trees and I suggested that we plant them in totally random places so that it looks more natural. My wife is concerned that if we plant any two within 3m of each other from center to center then they will have a hard time growing. I assured her that we could ensure that would not happen. Create a program that makes an array of 10 Points, assigns them random positions in my backyard. You must keep re-doing the process until no two trees are within 3 meters of each other. **Save as ArrayEx3.java**