1. Consider a two-dimensional array defined by

\[ \text{int}[][] \ a = \{(1,7,9),\{2,3,4\},\{5,6,0\}\}; \]

(a) Write a nested loop which prints out the values of \(a\) in the standard way

\[
\begin{array}{ccc}
  & 1 & 7 \\
1 & 7 & 9 \\
2 & 3 & 4 \\
5 & 6 & 0 \\
\end{array}
\]

(b) Write a nested loop which prints out the values of \(a\) in the transposed way, as in

\[
\begin{array}{ccc}
  1 & 2 & 5 \\
7 & 3 & 6 \\
9 & 4 & 0 \\
\end{array}
\]

2. Consider the following (partially defined) class \textit{Vec}, which represents a vector in 3-space:

```java
public class Vec{
    private double x,y,z;
    public Vec(double a, double b, double c);
        x = a;
        y = b;
        z = c;
    }
    public String toString(){
        return "(" + x + "," + y + "," + z + ")";
    }
    public double dot(Vec w){
            // Fill in here, returns the dot product of this and w
    }
    public Vec cross(Vec w){
            // Fill in here, returns the cross product of this and w
    }
}
```
You should implement the methods \texttt{dot} and \texttt{cross}, which represent the dot product and cross product of the two vectors. Here are the formulas: the dot product of two vectors \((x, y, z)\) and \((x', y', z')\) is a real number given by

\[(x, y, z) \cdot (x', y', z') = xx' + yy' + zz'.\]

On the other hand, the cross product of the same two vectors is another vector given by

\[(x, y, z) \times (x', y', z') = (yz' - zy', zx' - xz', xy' - yx').\]