Workshop Week 5 Solutions

1.

AS a side note, do we need

constructors in UML?

```
+--------------------------------+
|             Line               |
|                                |
|   -    Double b                |
|   -    Double m                |
|                                |
| + void Line(double b, double m)|
|                                |
| + double getGradient()         |
|                                |
| + double getYIntercept()       |
|                                |
| + int compare(Line l)          |
|                                |
| + String toString()            |
+--------------------------------+
```

2.

```
+----------------------------+
|            Line            |
|                            |
|   -    Double b            |
|   -    Double m            |
| + double getGradient()     |
|                            |
| + double getYIntercept()   |
|                            |
| + int compare(Line l)      |
|                            |
| + String toString()        |
+----------------------------+
             △
             |
     +-------+-------+
     |               |
```

```
+-------------------------+      +-------------------------------+
|      Vertical Line      |      |         Regular Line          |
|                         |      |                               |
|   -    Double xInt      |      |   -    Double b               |
| + void Line(double x)   |      |   -    Double m               |
|                         |      | + void Line(double b, double m)|
+-------------------------+      +-------------------------------+
```
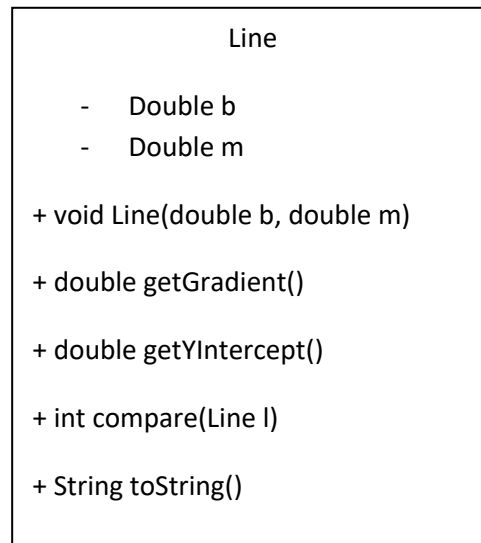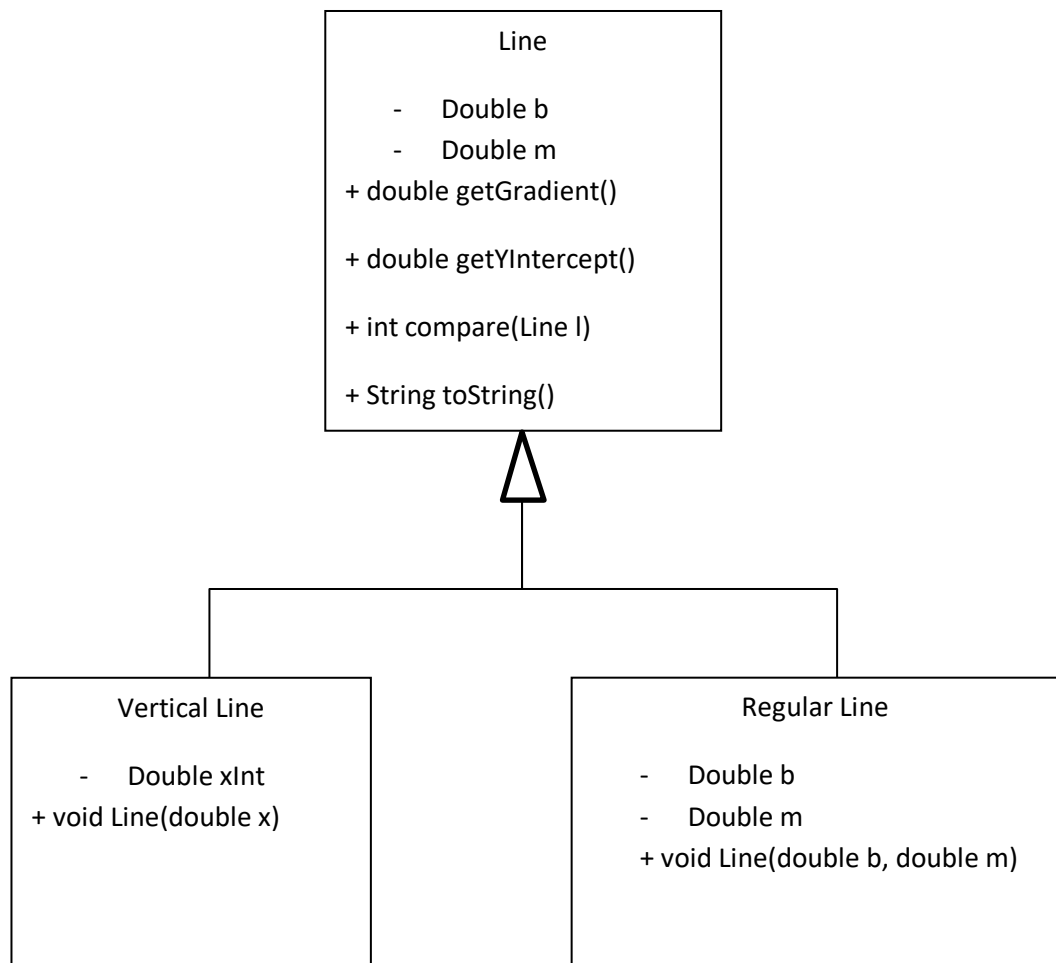
3.

```
Public Line createLine(x1, y1, x2, y2)
{
        If(x1 == x2)
        {
                //vertical line
                Return new VerticalLine(x1);
        }
        Else
        {
                //normal line
                Double m = (y2 - y1) / (x2-x1);
                Double b = y1 – gradient * x1;
                Return new RegularLine(b, m);
        }
}
```

4.
Fairly obvious,
Compare returns 1 if this instance is greater, 0 if even, -1 if the parameter is greater

5.
Again, fairly obvious. Just straight syntax conversion

6.
Have 'horiztonalLine' extend normal line. Add another case in the factory.