

This assignment is due Friday May 8th at 11:59pm. The late policy is in effect, however the assignment may not be graded before the final if you submit it late. You should do this assignment by yourself. Submit a pdf for the assignment through the Checkin webpage.

Total points: 100

1. Memory Layout. For the MeggyJava program listed below, show what values are in the stack and the heap at runtime before the epilogue for `createArray()` the SECOND time it is called. Draw the memory layout. Assume that locals and parameters are being stored on the stack. Show where the frame pointer will be pointing, show where the return address and frame pointer are stored, and show where all of the parameters, locals, and member variables are stored and their current values. For the values of pointers (including the frame pointer and the stack pointer) draw arrows to indicate what address the pointer variable contains.

```
import meggy.Meggy;

class PA5length {
    public static void main(String[] whatever){ new Lengthy().run(); }
}

class Lengthy {
    int field;
    byte another;

    public void run() {
        another = (byte)2;
        Meggy.setPixel((byte)2, (byte)this.createArray().length,
            this.createArray()[2]);
        Meggy.setPixel((byte)3, (byte)this.createArray().length,
            this.createArray()[1]);
    }

    public Meggy.Color [] createArray() {
        Meggy.Color [] retval;
        retval = new Meggy.Color[7];
        retval[0] = Meggy.Color.RED;
        retval[1] = Meggy.Color.BLUE;
        retval[2] = Meggy.Color.ORANGE;

        return retval;
    }
}
```