Special Topic 4.1

Big Numbers

If you want to compute with really large numbers, you can use big number objects. Big number objects are objects of the `BigInteger` and `BigDecimal` classes in the `java.math` package. Unlike the number types such as `int` or `double`, big number objects have essentially no limits on their size and precision. However, computations with big number objects are much slower than those that involve number types. Perhaps more importantly, you can't use the familiar arithmetic operators such as (`+ - *`) with them. Instead, you have to use methods called `add`, `subtract`, and `multiply`. Here is an example of how to create a `BigInteger` object and how to call the `multiply` method.

```
BigInteger n = new BigInteger("1000000");
BigInteger r = n.multiply(n);
System.out.println(r); // Prints 1000000000000
```

The `BigDecimal` type carries out floating-point computation without roundoff errors. For example,

```
BigDecimal d = new BigDecimal("4.35");
BigDecimal e = new BigDecimal("100");
BigDecimal f = d.multiply(e);
System.out.println(f); // Prints 435.00
```