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## 1 Programming

For this lecture, we will be writing some very basic programs. When learning to program in virtually any language, the first programs that are written are basic calculator type exercises. In C/C++/Javascript and many other languages, this would require a program that was potentially 20-30 lines long. We will see that these types of exercises in MATLAB can be done in just a few steps.

## 2 MATLAB Variables

To this point we have used very generic names for our variables. This is acceptable in some cases, but generally it is a much better idea to choose variable names that are reflective of the quantity the variable represents. For example, if you are computing an acceleration, then variable names like `a`, `acc`, `accel`, *etc.* make more sense than a variable named `orange`.

MATLAB variables must conform to the rules below:

- Variables must start with a letter.
- Variables can contain letters, numbers and the underscore character.
- Variables can be up to 63 characters long, but you shouldn't need anything close to this length in this class.
- Variables should not be the same as an existing MATLAB function. For example, you can't use `sin` as a variable name. If you want to check if a potential variable name is already being used for something else, you can use the `exist` command

```
>> exist sin
ans =
     5
```

If the output of this command is anything but 0, you can't use that variable name.

- Variables should not have the same name as an existing script file.