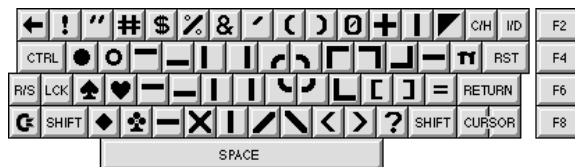


## Learning some BASIC programming

Workshop for DIKULT104, 6 March 2015, Jill Walker Rettberg

1. Open WinVICE, which is a Commodore 64 emulator or use a web-based emulator, like [http://codeazur.com.br/stuff/fc64\\_final/](http://codeazur.com.br/stuff/fc64_final/)

The C64 keyboard layout is more or less like a modern US keyboard, so for symbols you will have to look at these pictures. The first is the standard keyboard, the second is with the SHIFT key down.



2. Let's start. Type `PRINT "HELLO WORLD"` and press return.
3. What's the difference between `PRINT 2 + 2` and `PRINT "2 + 2"`?
4. Make a program by using line numbers. We use 10, 20, 30 rather than 1, 2, 3 so that it's easy to add new lines in between if needed.

```
10 PRINT "HELLO WORLD"  
20 END
```

Type `RUN` to run your program. Type `LIST` to see the program code. Try adding a line:

```
15 PRINT "IT'S A LOVELY DAY"
```

Remember this is a command line interface. You can edit lines in the program by using arrow keys to get to the line and typing over the existing words. Then press `RETURN` or the computer won't pay any attention to your changes. Another way to edit is to wait for the computer to say `"READY"` and give you a cursor. The type the line with the error all over again, and press `RETURN`. Now type `LIST` and the computer will show you the whole program, with your corrected line.

5. To start a new program (and get rid of the old one!) type `NEW`.
6. Now try a `GOTO` loop:

```
10 PRINT "HELLO WORLD"  
20 GOTO 10
```

Press `ESC` to escape the endless loop. This maps to the `RUN/STOP` key on the original Commodore 64.

7. `REM` lets you add comments to your code. Add some.

```
30 REM THIS IS A NOTE TO MYSELF THAT THE COMPUTER WILL
  IGNORE.
```

8. We need variables:

```
10 PRINT "TELL ME A NUMBER"
20 INPUT X
30 PRINT "YOU LIKE THE NUMBER " X "?"
```

Now type RUN. The computer will show "TELL ME A NUMBER" on the screen and then a ? and a blinking cursor. That means it wants you to type something in. Now the variable X is set to the number you typed. When your program finishes running, you can try typing "PRINT X" (without line numbers, just as a command) and the computer will show you the number you typed in. It's in memory now, not just part of the program.

9. Now try a text variable (a string). If you want a variable to contain text and not just numbers, you need to put a \$ at the end of it.

```
40 PRINT "WHAT IS YOUR NAME?"
50 INPUT NAME$
60 PRINT "HELLO " NAME$
```

Play around and see what you can do with this. After a bit of messing around, we'll do a show and tell.

10. Now try a text variable (a string). If you want a variable to contain text and not just numbers, you need to put a \$ at the end of it.

11. Let's try an IF-THEN loop:

```
10 PRINT "WHAT IS YOUR NAME?"
20 INPUT NAME$
30 IF NAME$ = "ENOUGH" THEN GOTO 50
40 GOTO 20
50 END
```

You can use other operators than the equal sign, like lesser than < and greater than >. <> (is lesser than or greater than) means NOT EQUAL TO. So:

```
IF NAME$ <> "CORDELIA" THEN PRINT "I REALLY PREFER THE NAME CORDELIA"
```

Play around a bit more. If you get stuck in an endless loop, you may have to reset your emulator - use the file menu at the top to find the reset options.

12. OK, now we're going to look at an example. Type this program in and see what happens:

```
10 PRINT CHR$(205.5+RND(1)); : GOTO 10
```

How does this work? Hints: have a look at (or Google) the RND command and the Commodore 64 character set. Now, what can you make, using what we've learnt?