Lesson 11: Assembly language I

Computing

Computer systems

Mac Bowley

Assembly language toolbox

Command	Mnemonic	Description	Opcode
Input			
Store			
Load			
Output			

Assembly language toolbox

Command	Mnemonic	Description	Opcode
Branch if positive			
Branch if zero			
Branch always			
Add			

Assembly language toolbox

Command	Mnemonic	Description	Opcode
Subtract			
Halt			
Data			

Assembly language toolbox

Python	Assembly	Notes
num1 = input()		
num2 = input()		
print(num1 + num2)		

Analysing assembly language

```
        INP
        STA NUM1
        INP
        STA NUM2
        SUB NUM1
        BRP BIGGER
        LDA NUM1
        OUT
        BRA END
BIGGER  LDA NUM2
        OUT
END     HLT
NUM1    DAT
NUM2    DAT
```

Have a read through this assembly language program.

Questions:

1. What do you think it will do when it is executed?
2. What new commands is it using?

Analysing assembly language

```
        INP
        STA NUM1
        INP
        STA NUM2
        SUB NUM1
        BRP BIGGER
        LDA NUM1
        OUT
        BRA END
BIGGER  LDA NUM2
        OUT
END     HLT
NUM1    DAT
NUM2    DAT
```

Copy the program and paste it into the LMC simulator. Run the program to test your predictions.

Make notes on the new commands adding to the **description** section of your toolbox.