

Stored Program Concept

Parts of a CPU:

- Arithmetic Logic Unit (ALU)
Circuitry for arithmetic and logic operations.
- Control Unit
Fetches, interprets, and executes instructions.
- Registers
Holds data for use by the ALU.
- Buses
Circuits connecting the CPU, registers, and memory.
- Main Memory
Internal memory containing instructions and data for use by the CPU. (Storing instruction in memory is known as the stored program concept - Von Neumann.)

Control Unit Registers:

- Program Counter (PC):
Contains the main memory address of the next instruction to be fetched.
- Instruction Register (IR):
Contains the instruction that is currently executing.

Control Unit Instruction Execution - The Machine Cycle:

- **Fetch** the next instruction from the address in main memory contained in the program counter. Place the instruction into the instruction register. Increment the program counter to the next location in memory.
- **Decode (or interpret)** the instruction to understand what operations and resources are required for its execution.
- **Execute** the next instruction by obtaining the resources needed and carrying out the required operations.

Example - Add two numbers stored in memory:

- obtain the first number from memory and store it in a register.
- obtain the second number from memory and store it in a register.
- use the ALU to add the two numbers together and place the sum into another register.
- store the sum into main memory.

Introduction to JavaScript

JavaScript is a high-level language that is **interpreted** - translated into machine language at the time of usage (run-time)

JavaScript allows for dynamic, real-time changes to the web page the user is accessing. The user causes an “ event” (e.g., moving the mouse to press a button) and the programmer can use JavaScript to program a response.

Important Issues for JavaScript:

- the instructions are written in lowercase.
- all instructions must be spelled correctly or the interpreter will not understand them.
- parts of an instruction must be separated by a space and not run together.
- the correct punctuation must be used.

JavaScript alert(“ string”) function:

The alert function requests that the browser pop-up a small window that contains the words in the string.

Inserting JavaScript into a Web page:

```
< script language= " JavaScript" >  
    alert(“ your message goes here” );  
< /script>
```

JavaScript prompt(“ string”) function:

```
< script language= " JavaScript" >  
    var text = prompt(“ Please enter some text” );  
    alert(text);  
< /script>
```