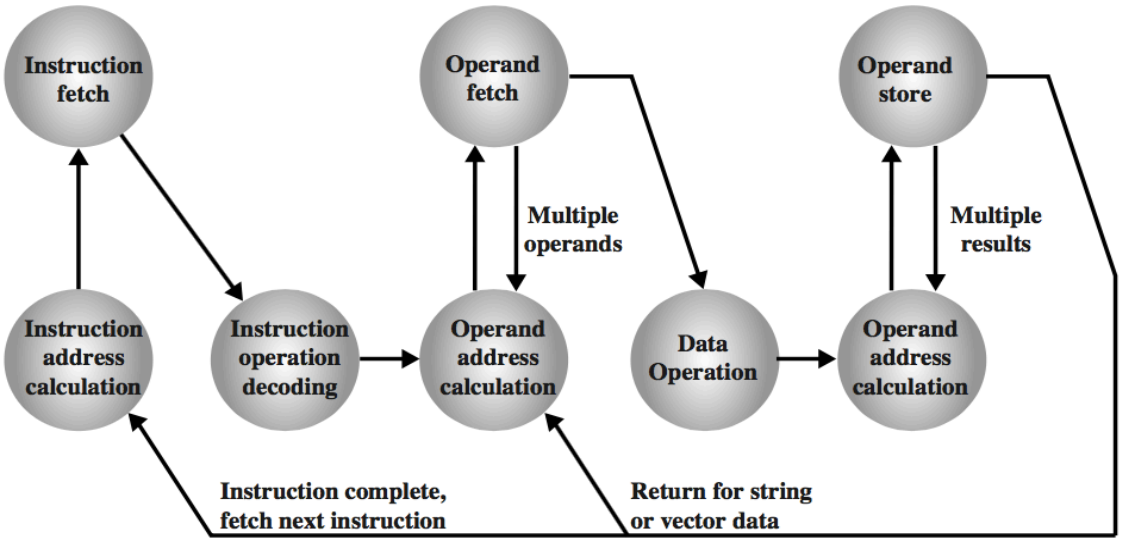
INSTRUCTION CYCLE

An instruction cycle is the complete process of fetching, decoding and executing the instruction.



1) **PC gives the address to fetch** an instruction from the memory.
2) Once fetched, the **instruction opcode is decoded**.
3) This **identifies**, if there are **any operands to be fetched** from the memory.
4) The **operand address is calculated.**
5) **Operands are fetched** from the memory.
6) Now the **data operation is performed** on the operands, and a **result is generated**.
7) If the result has to be stored in a **register**, the **instruction ends** here.
8) If the **destination is memory**, then first the **destination address has to be calculated**.
9) The result is then **stored in the memory**.
10) Now the current instruction has **been executed**.
11) **Side by side PC is incremented** to calculate address of the next instruction.
12) The above instruction cycle then **repeats for further instructions**.