

Program Execution

Embedded Systems

Wolfgang Neff

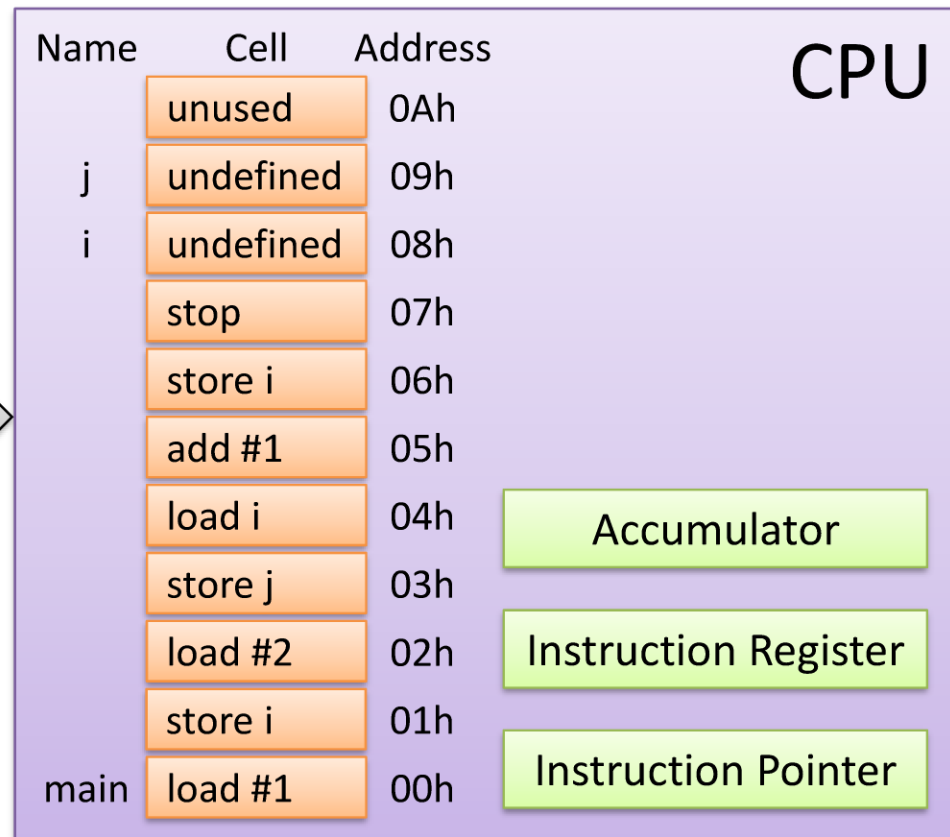
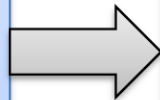
Program Execution (1)

- Compilation

```

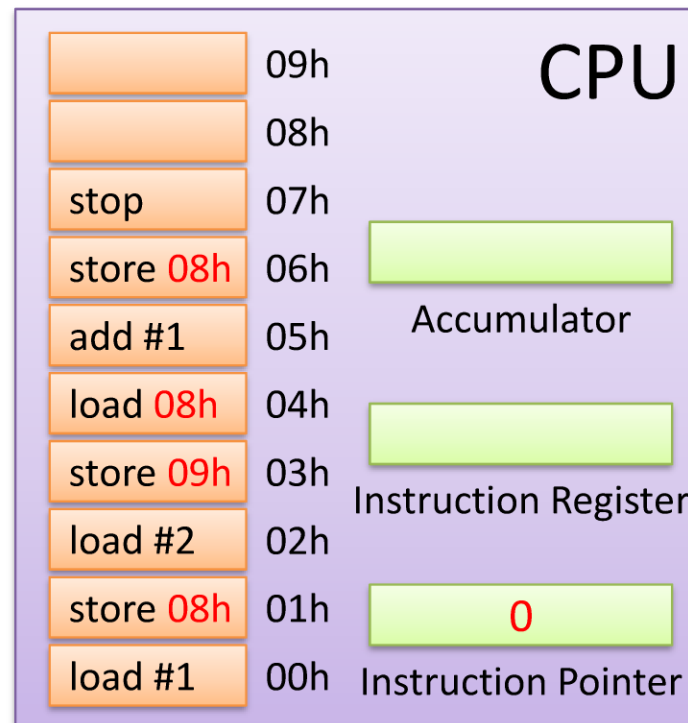
int i;
int j;

int main(void)
{
    i = 1;
    j = 2;
    i = i+1;
}
  
```



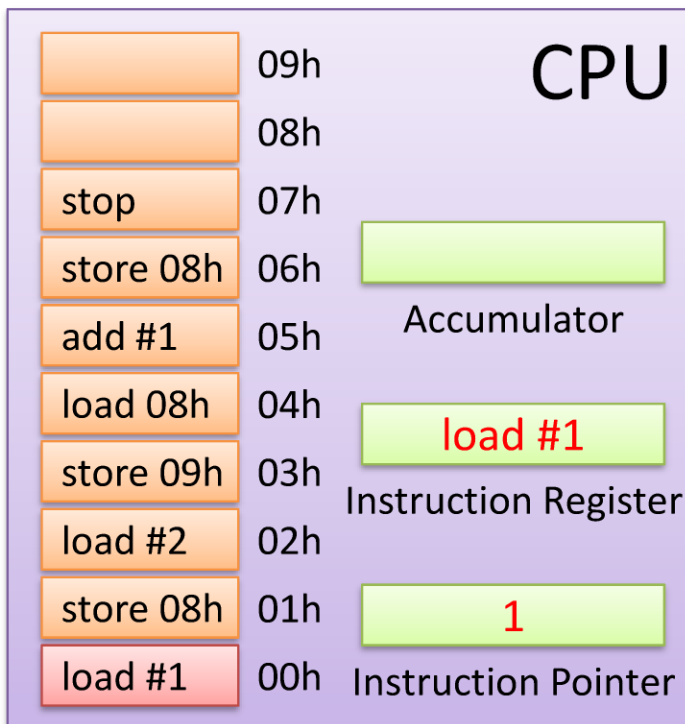
Program Execution (2)

- Initial State



Program Execution (3)

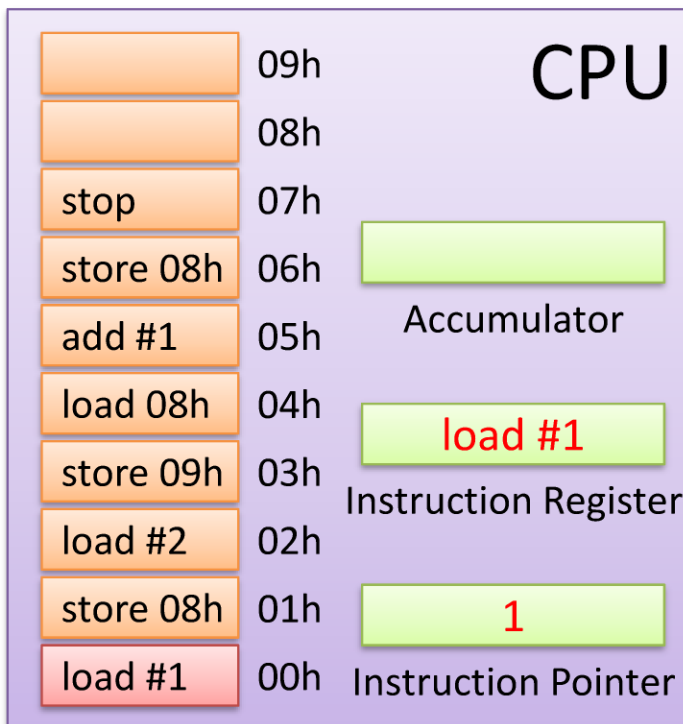
- First Instruction – Instruction Fetch



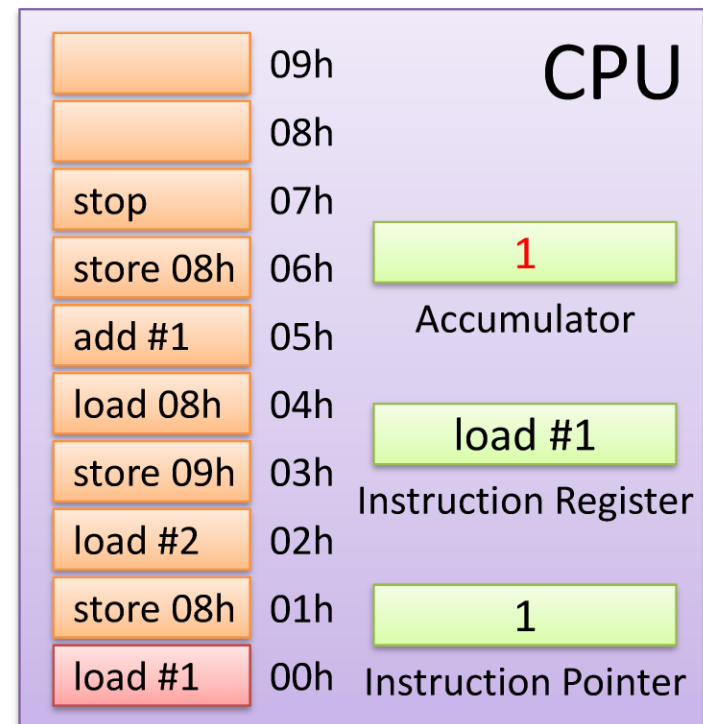
After Instruction Fetch

Program Execution (3)

- First Instruction – Execution



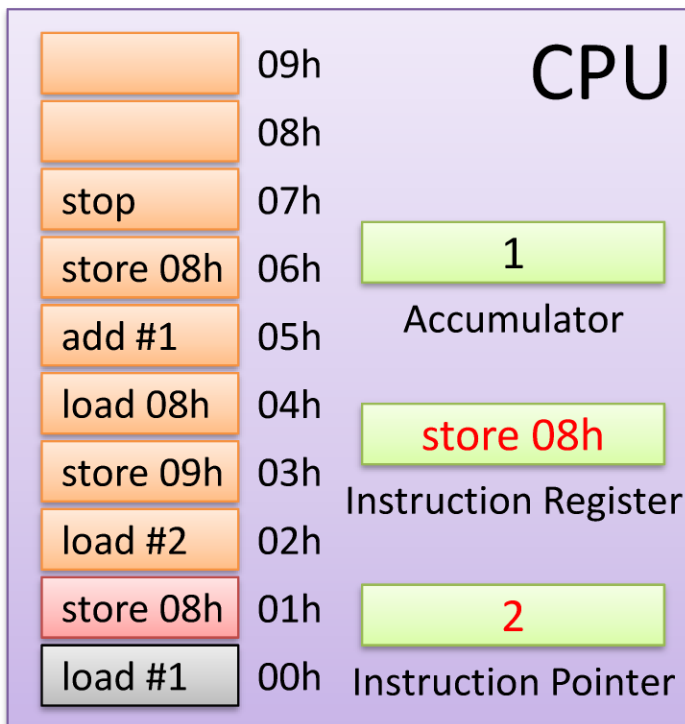
After Instruction Fetch



After Execute

Program Execution (4)

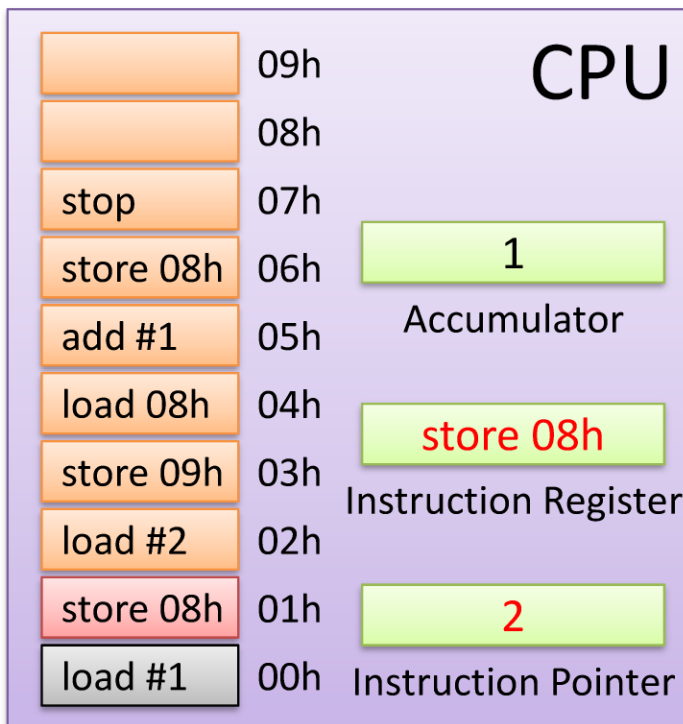
- Second Instruction – Instruction Fetch



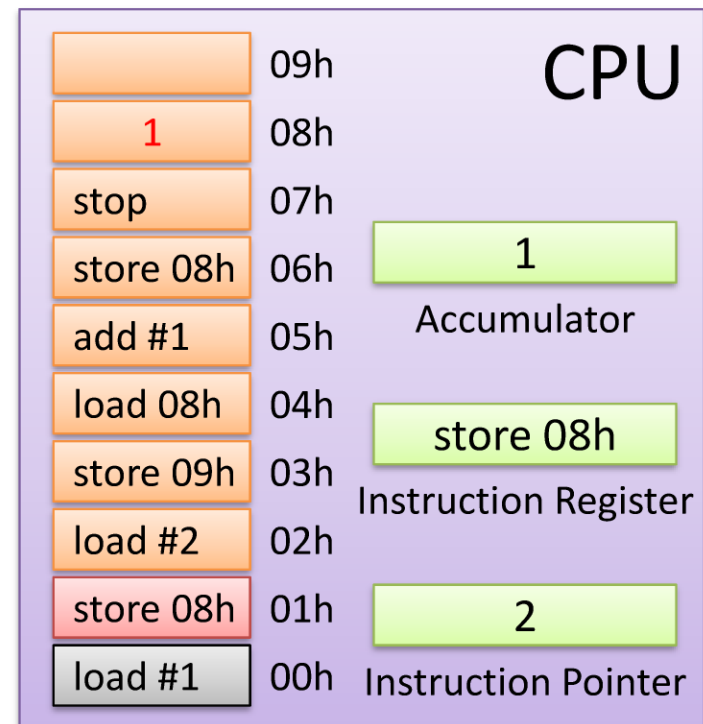
After Instruction Fetch

Program Execution (4)

- Second Instruction – Execution



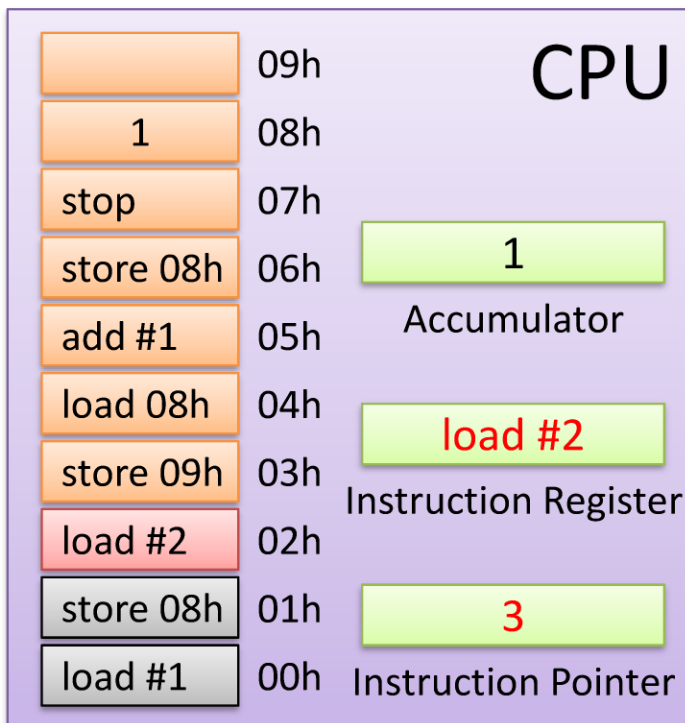
After Instruction Fetch



After Execute

Program Execution (5)

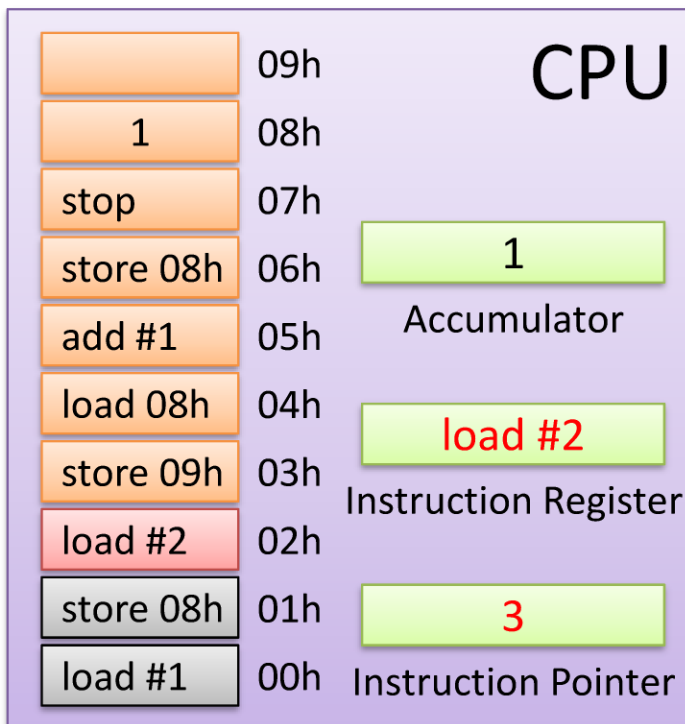
- Third Instruction – Instruction Fetch



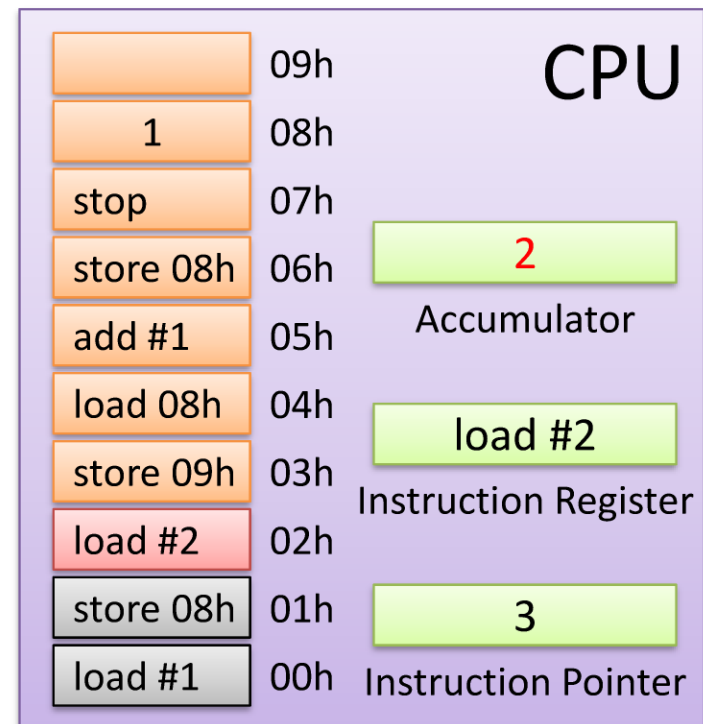
After Instruction Fetch

Program Execution (5)

- Third Instruction – Execution



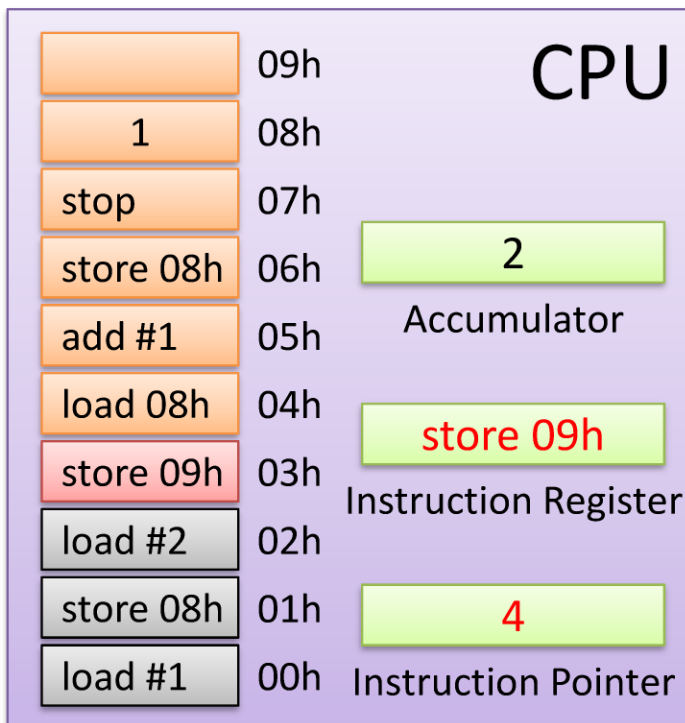
After Instruction Fetch



After Execute

Program Execution (6)

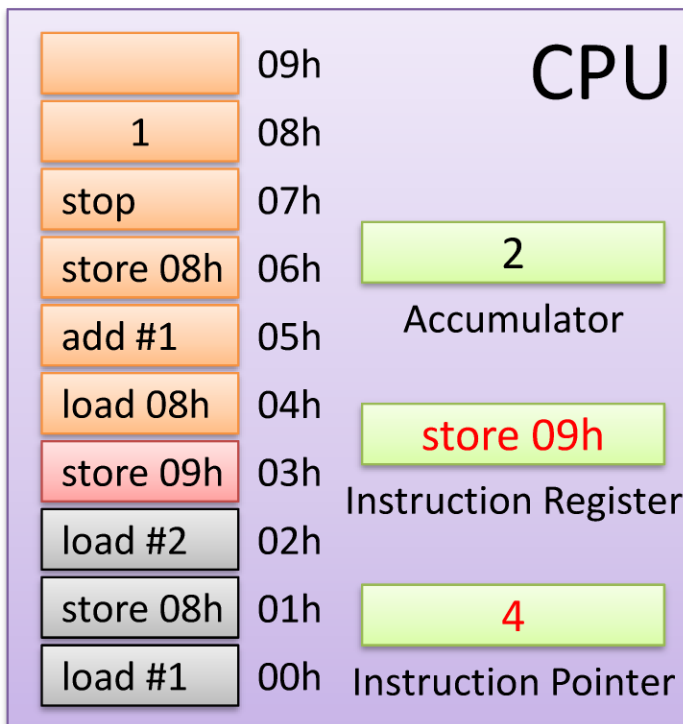
- Fourth Instruction – Instruction Fetch



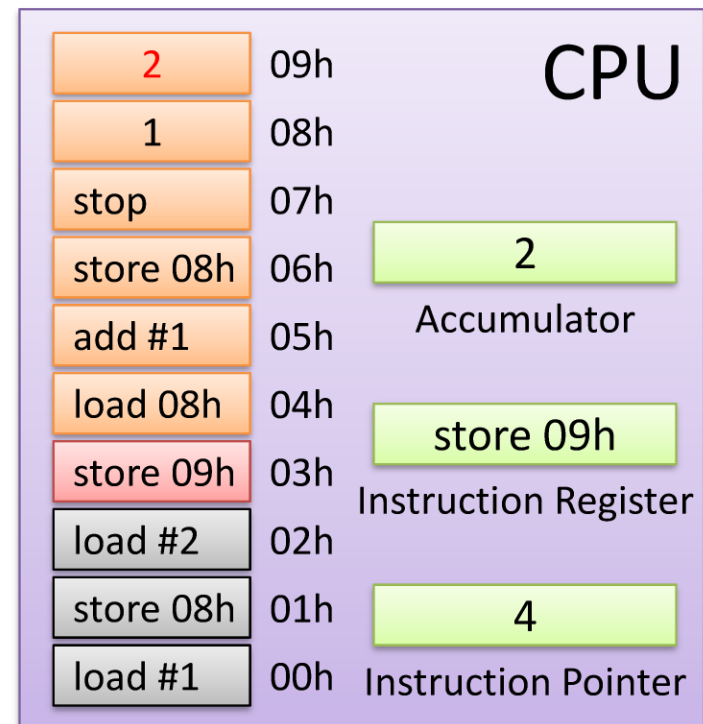
After Instruction Fetch

Program Execution (6)

- Fourth Instruction – Execution



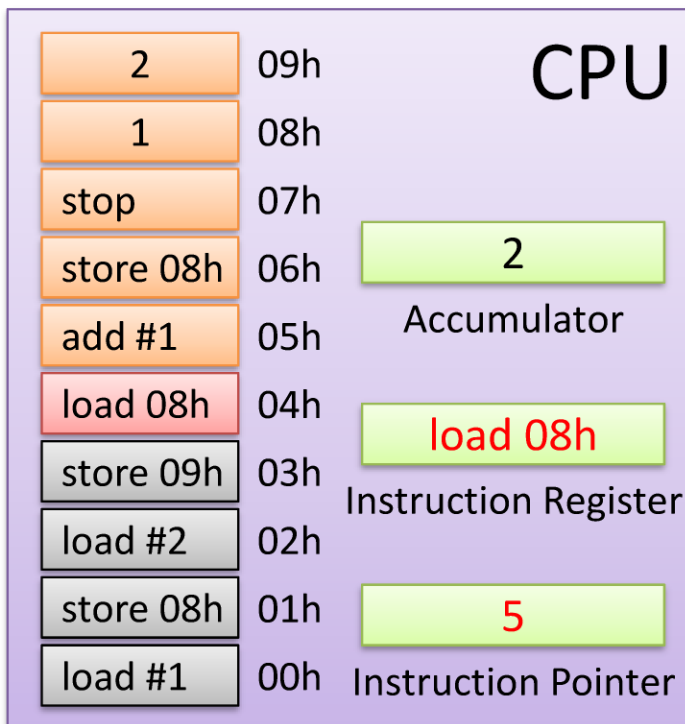
After Instruction Fetch



After Execute

Program Execution (7)

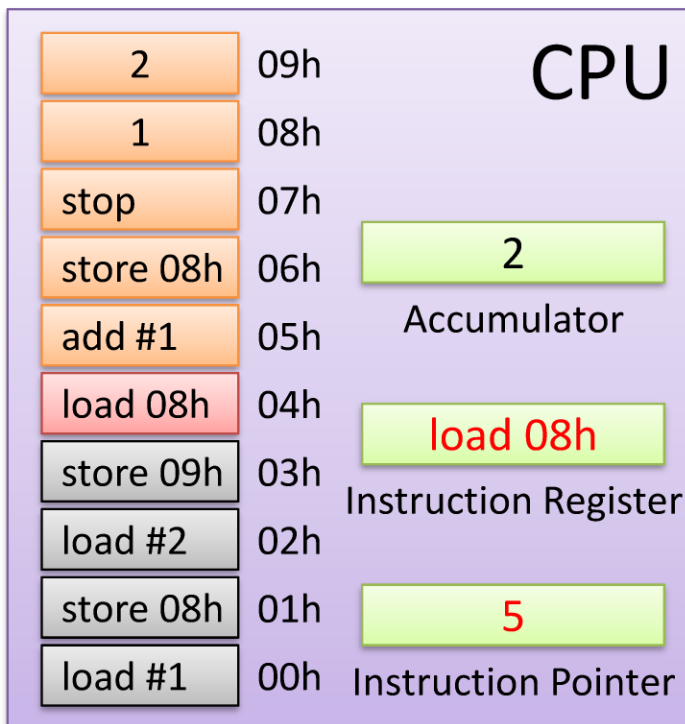
- Fifth Instruction – Instruction Fetch



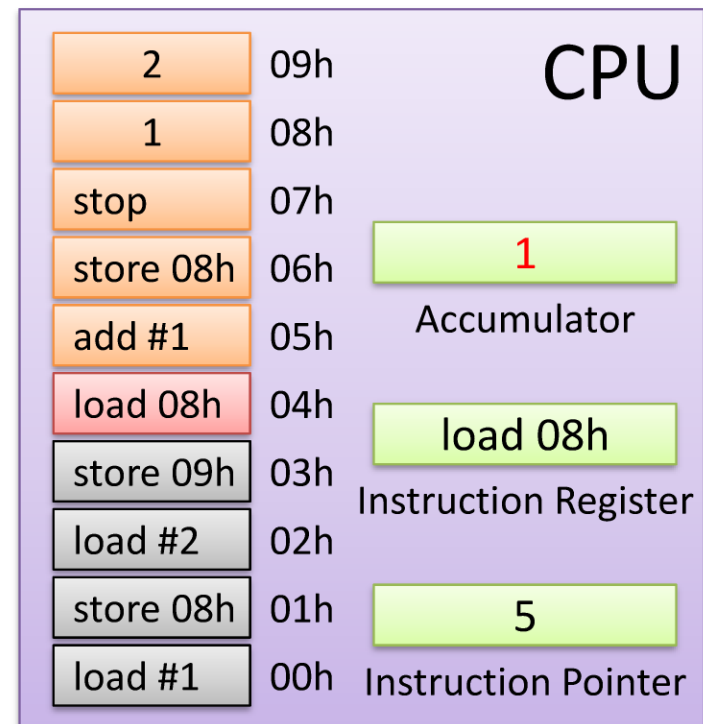
After Instruction Fetch

Program Execution (7)

- Fifth Instruction – Execution



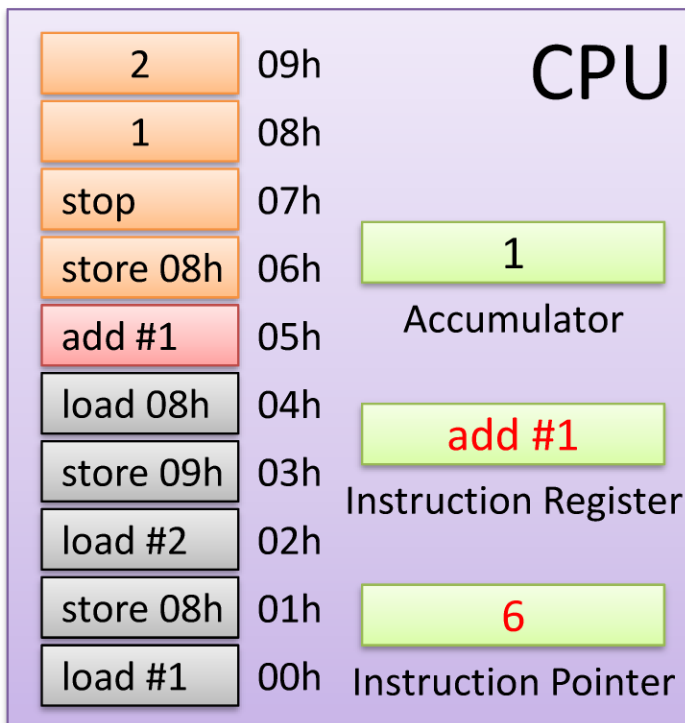
After Instruction Fetch



After Execute

Program Execution (8)

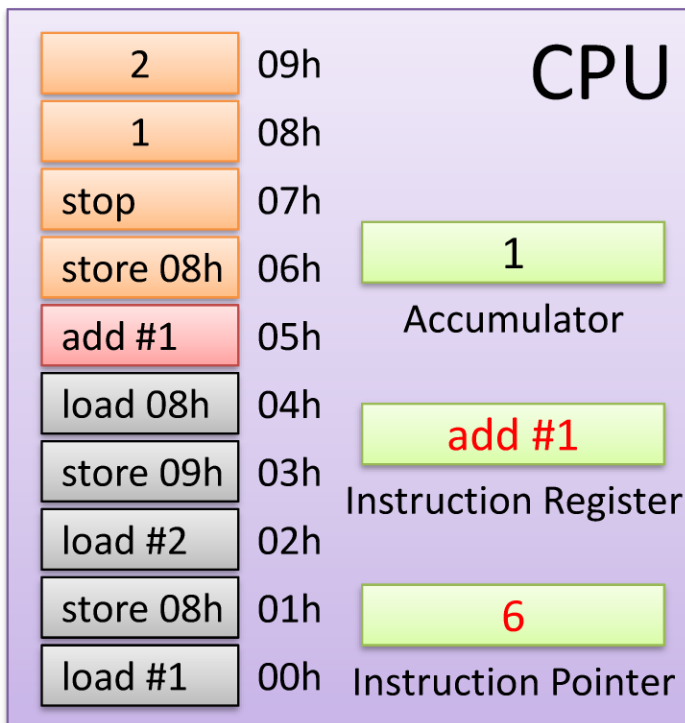
- Sixth Instruction – Instruction Fetch



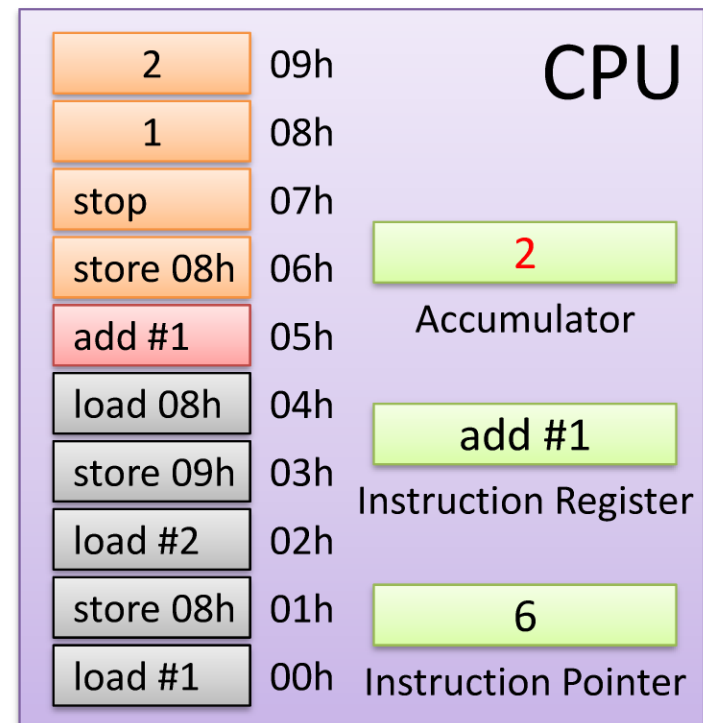
After Instruction Fetch

Program Execution (8)

- Sixth Instruction – Execution



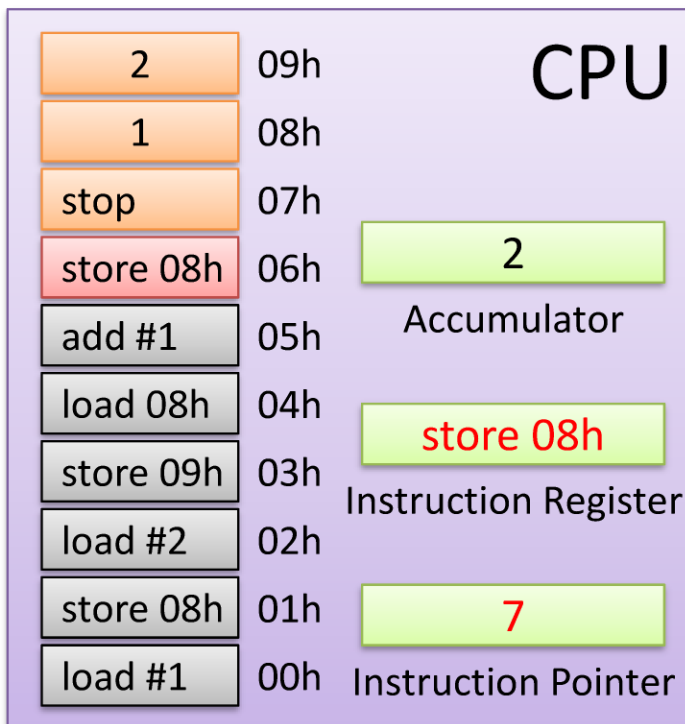
After Instruction Fetch



After Execute

Program Execution (9)

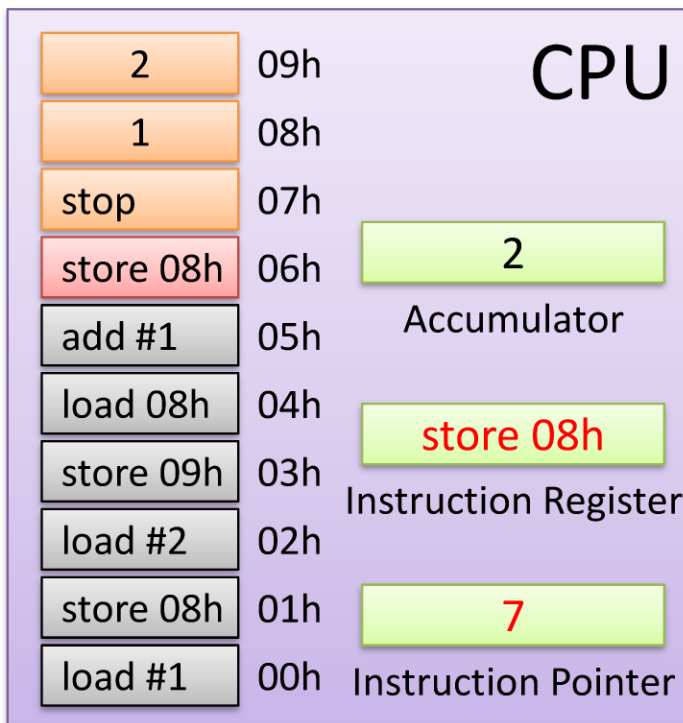
- Seventh Instruction – Instruction Fetch



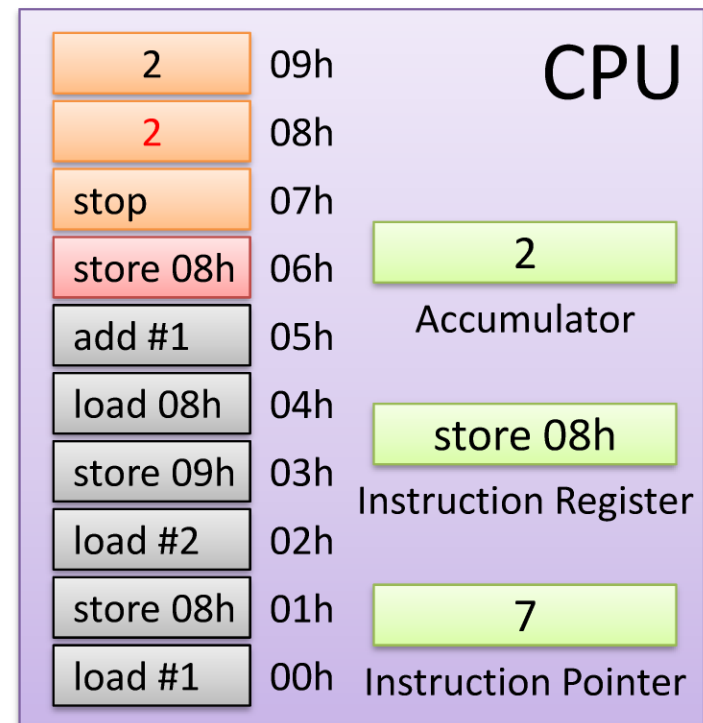
After Instruction Fetch

Program Execution (9)

- Seventh Instruction – Execution



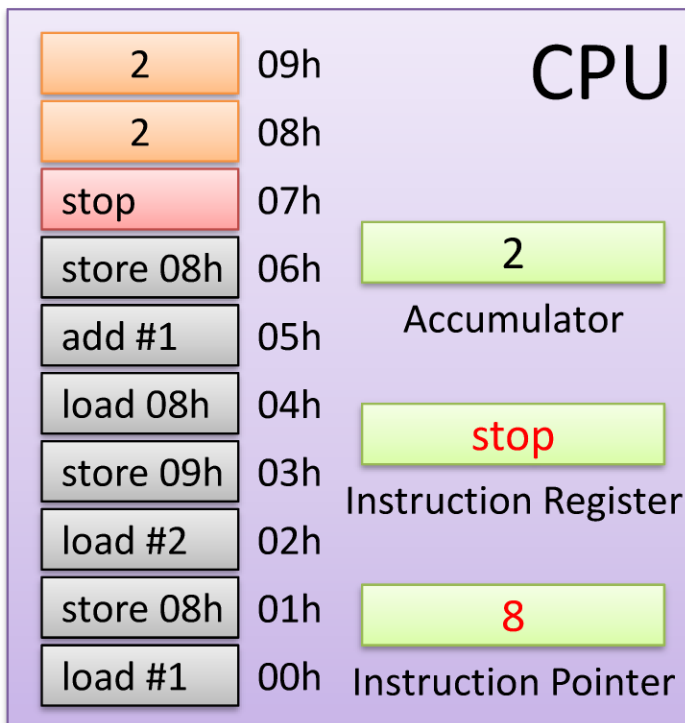
After Instruction Fetch



After Execute

Program Execution (10)

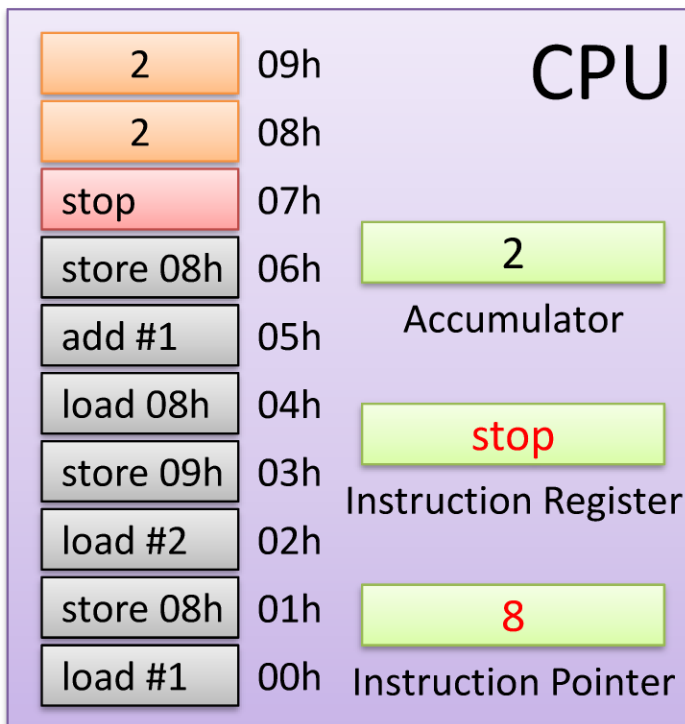
- Eight Instruction – Instruction Fetch



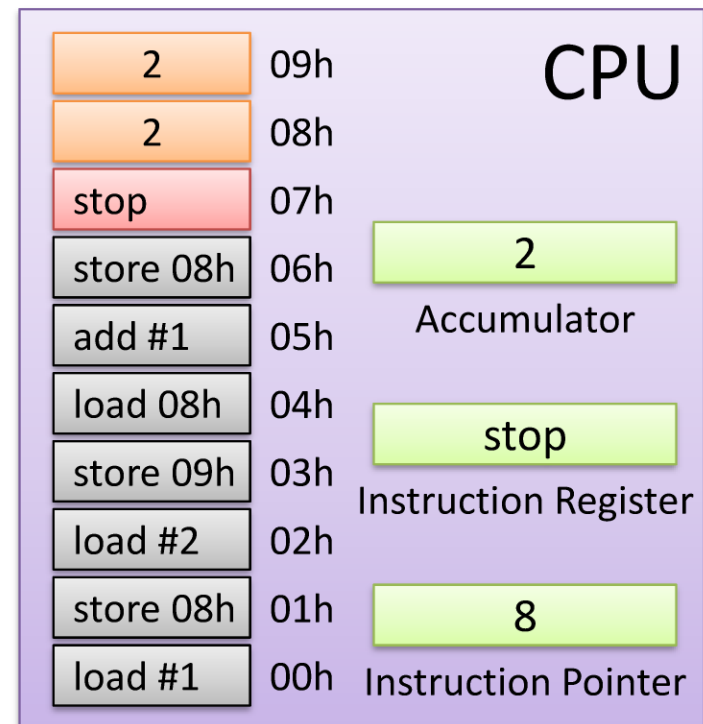
After Instruction Fetch

Program Execution (10)

- Eight Instruction – Execution



After Instruction Fetch



After Execute

Program Execution (11)

- Final State

