



BridgeLabz

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Programming Concepts

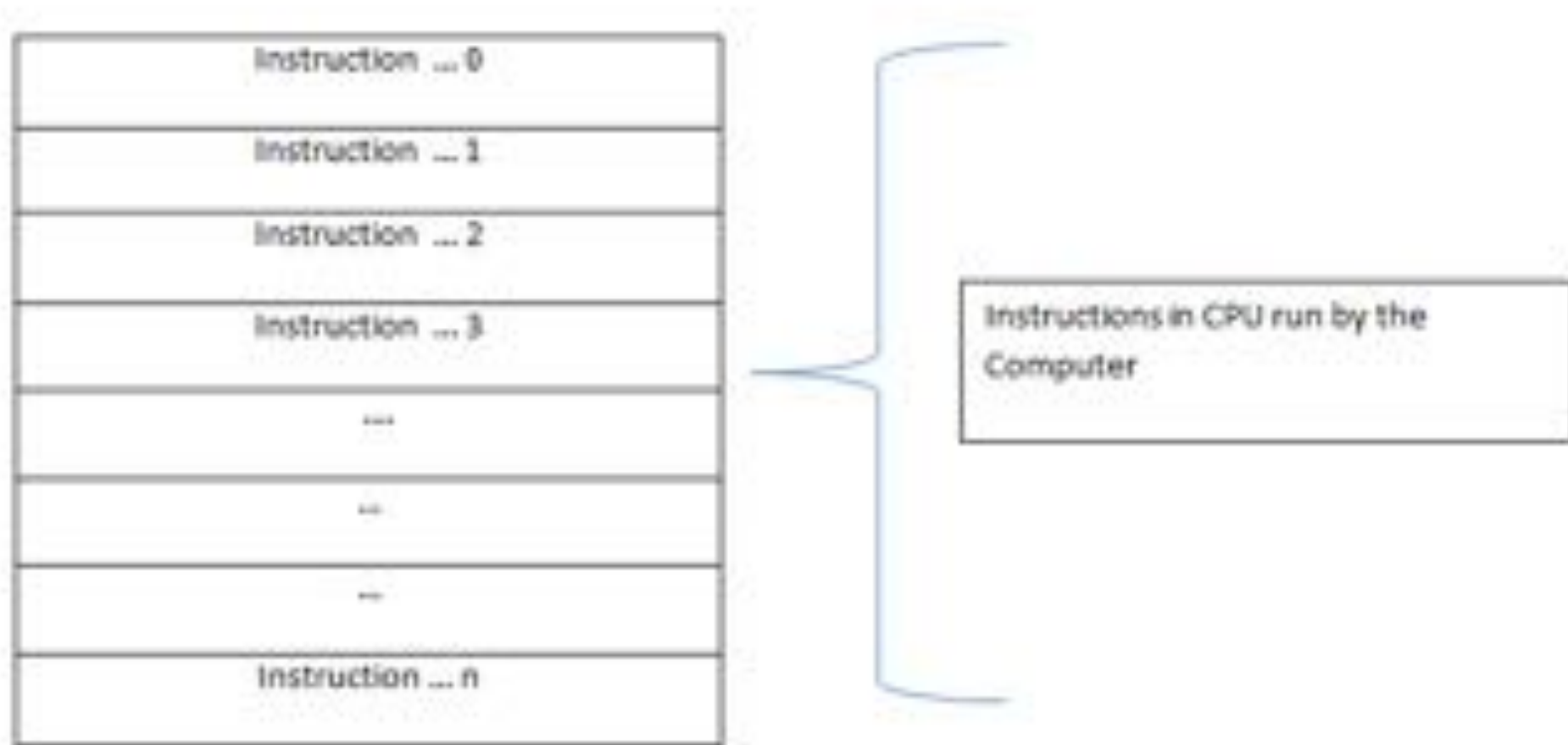
What is a Program

A program is a set of instructions that the computer executes.

What is a Program – To be more Precise

To be more precise, a program is a set of instructions loaded in the CPU that the CPU executes to achieve an outcome

A Program is mainly set of Instructions



Demonstrating add.sh & Execution Thread

```
GNU nano 2.0.6 File: add.sh

#!/bin/bash -x
x=100;
y=100;
z=$(( $x + $y ))
echo $z
```

add.sh program with following Instructions

1. Variable \$x Declaration and Assignment
2. Variable \$y Declaration and Assignment
3. Addition of \$x and \$y and assigning to variable \$z
4. Displaying \$z
5. NOTE : Arithmetic Expression *$$(expression)$*

```
Narayans-MacBook-Pro:TerminalCommands narayan$ nano add.sh
Narayans-MacBook-Pro:TerminalCommands narayan$ ./add.sh
+ x=100
+ y=100
+ z=200
+ echo 200
200
Narayans-MacBook-Pro:TerminalCommands narayan$
```

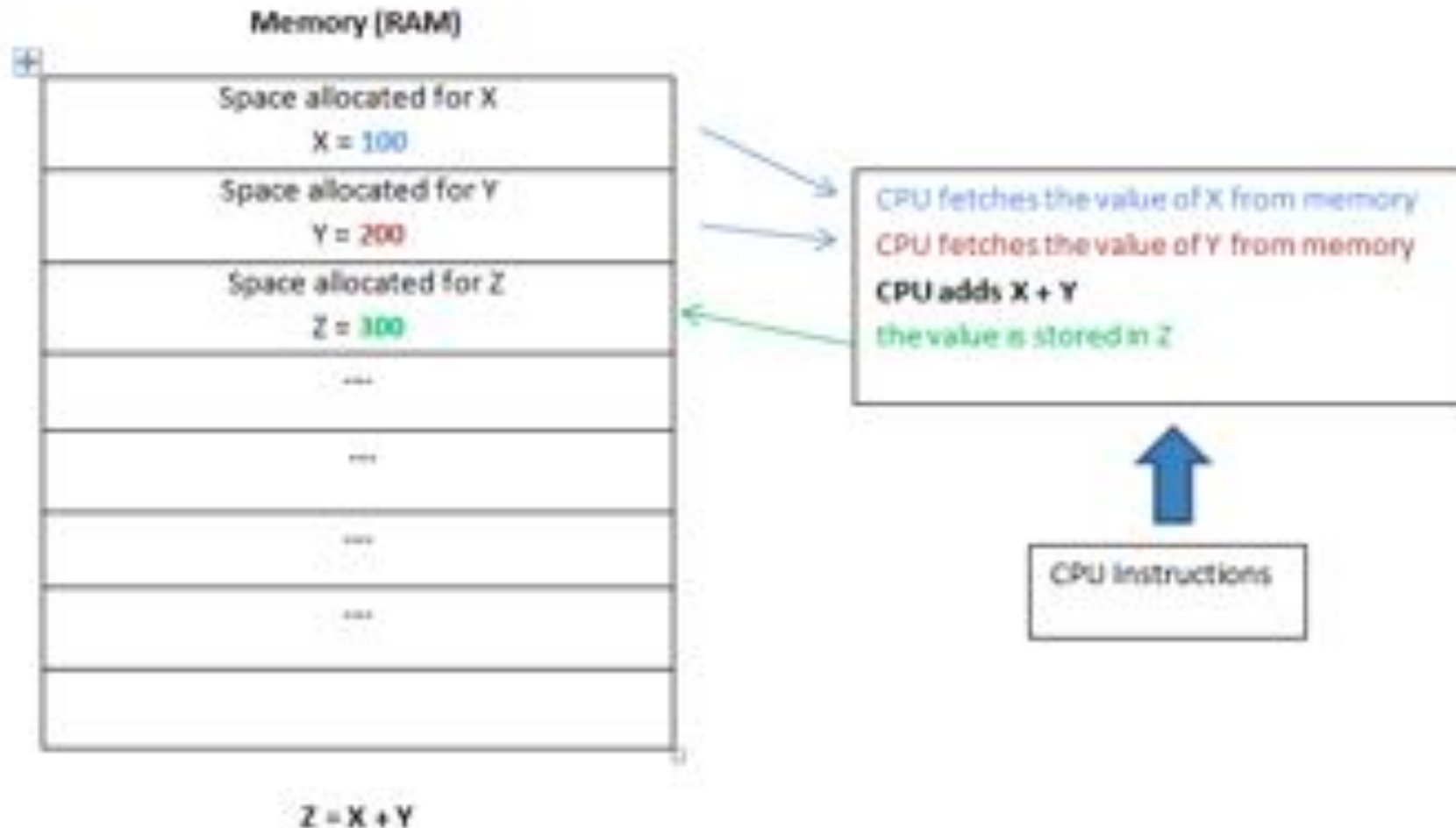
Terminal showing 4 execution steps indicated by “+”

1. Space allocated in RAM for \$x
2. Space allocated in RAM for \$y
3. CPU fetches value of \$x and \$y from memory. Adds \$x + \$y and stores the value in \$z
4. Display the value of \$z

Core Hardware Components to Run a Program

- The two major components to execute a program are
 - *i) CPU* to runs a set of instructions and
 - *ii) Memory (RAM)* that works as a temporary storage to help the CPU achieve the desired output/outcome.

A Program is mainly set of Instructions



Demonstrating add.sh & Execution Thread

```
TerminalCommands — nano add.sh — 75x21
GNU nano 2.0.6 File: add.sh
```

```
#!/bin/bash -x
read -p "Enter first number: " x
read -p "Enter second number: " y
z=$(( $x + $y ))
echo $z
```

```
TerminalCommands — -bash — 75x21
Narayans-MacBook-Pro:TerminalCommands narayan$ nano add.sh
Narayans-MacBook-Pro:TerminalCommands narayan$ ./add.sh
+ read -p 'Enter first number: ' x
Enter first number: 100
+ read -p 'Enter second number: ' y
Enter second number: 100
+ z=200
+ echo 200
200
```




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Thankyou