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# CP 111

### SOURCE CODE AND RAM DIAGRAM
### DISECTION OF THE
### FIRST C++ PROGRAM

```cpp
#include<iostream>
using namespace std;

int main(){
    int x;
    int y;
    int z;

    cout<<"Ingiza x"<<endl;
    cin>>x;
    cout<<"Ingiza y "<<endl;
    cin>>y;

    if(x>y){
        z = x/y;
    }
    else{
        z = y/x;
    }

    cout<<"Jibu ni : "<<z<<endl;

    return 0;
}
```

# T21-03-0029

**RAM**

| |
|---|
| FREE |
| FREE |
| FREE |
| FREE |
| FREE |
| FREE |
| FREE |
| FREE |

**State of the RAM before declaring any variable within the program**

**RAM**

| | |
|---|---|
| x | RESERVED |
| y | RESERVED |
| Z | RESERVED |
| | FREE |
| | FREE |
| | FREE |
| | FREE |
| | FREE |

**The state of RAM when the first and second variables "x" and "y" and "z" are declared.**

**RAM**

| | |
|---|---|
| x | RESERVED |
| y | RESERVED |
| Z | RESERVED |
| | FREE |
| | FREE |
| | FREE |
| | FREE |
| | FREE |

**If( x>y )**

**The state of RAM when the two variables are compared, and a specific output is produced in which the results of the division is stored in variable "z"**

**x / y**
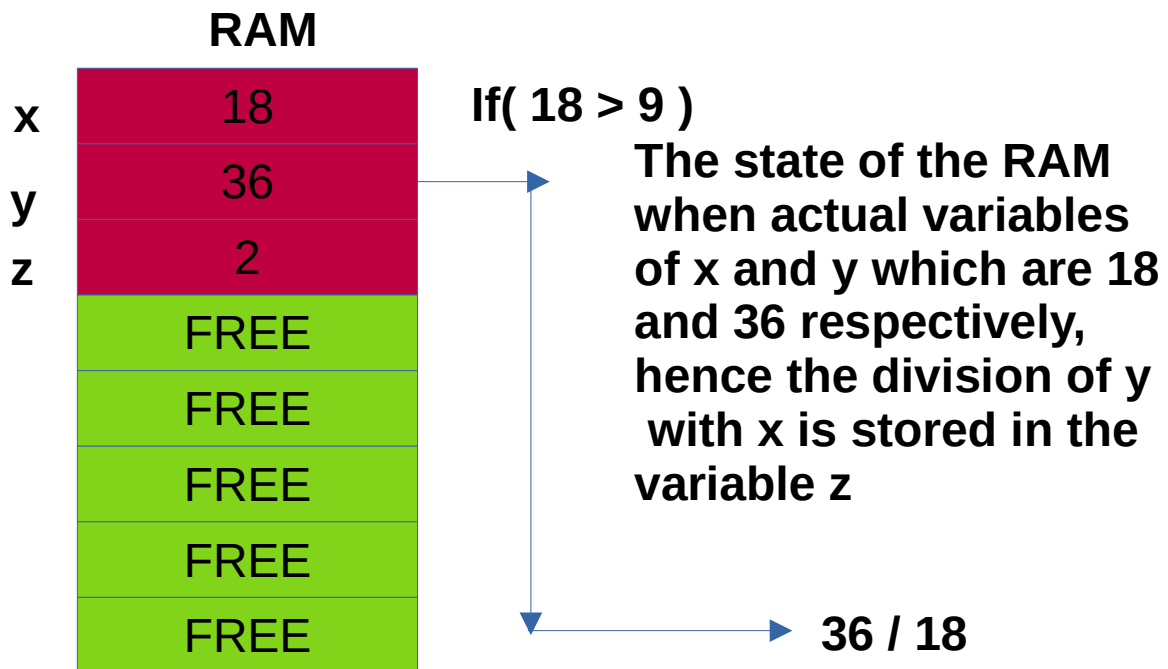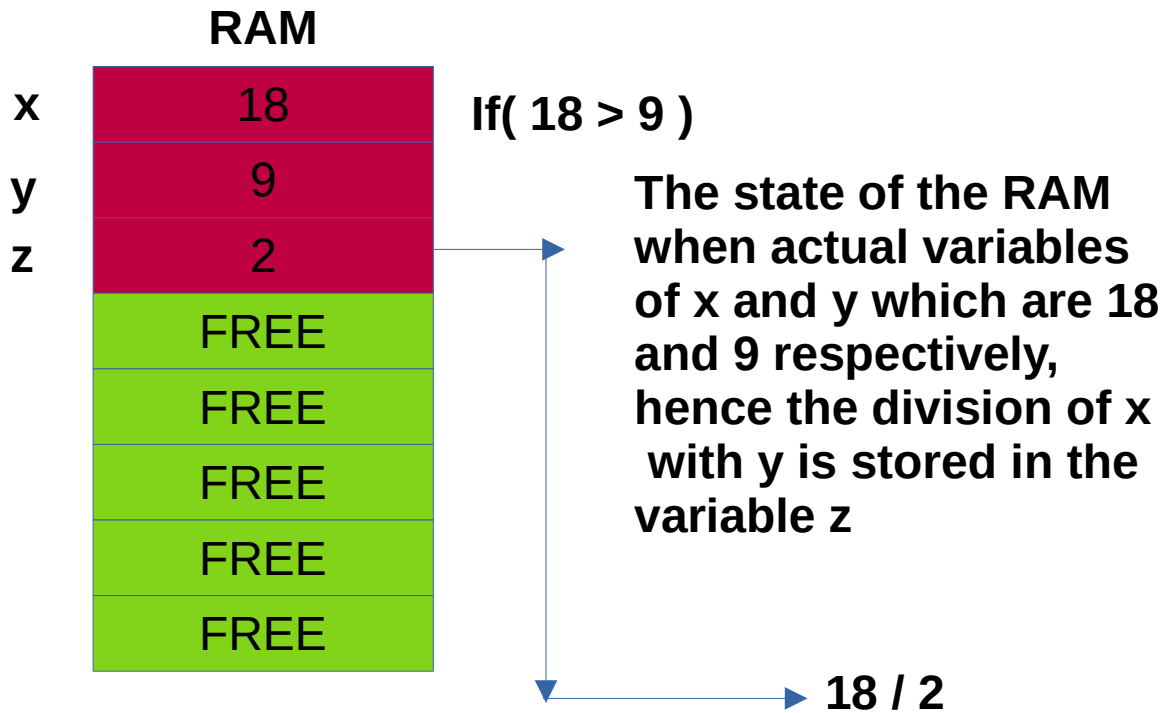
# T21-03-0029

## RAM

| | |
|---|---|
| x | 18 |
| y | 9 |
| z | 2 |
| | FREE |
| | FREE |
| | FREE |
| | FREE |
| | FREE |

**If( 18 > 9 )**

**The state of the RAM when actual variables of x and y which are 18 and 9 respectively, hence the division of x with y is stored in the variable z**

**18 / 2**

## RAM

| | |
|---|---|
| x | 18 |
| y | 36 |
| z | 2 |
| | FREE |
| | FREE |
| | FREE |
| | FREE |
| | FREE |

**If( 18 > 9 )**

**The state of the RAM when actual variables of x and y which are 18 and 36 respectively, hence the division of y with x is stored in the variable z**

**36 / 18**

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**CP 111**

# SOURCE CODE AND RAM DIAGRAM DISECTION OF THE SECOND C++ PROGRAM

```cpp
#include<iostream>
using namespace std;

int main(){
    int umri;

    cout<<"Ingiza umri wako "<<endl;
    cin>>umri;

    if(umri >= 18){
        cout<<"Mtu mzima"<<endl;
    }
    else{
        cout<<"Bado Mtoto"<<endl;
    }

    return 0;
}
```

# RAM DIAGRAM OF umri.cpp Program

## RAM

| |
|:---:|
| FREE |
| FREE |
| FREE |
| FREE |
| FREE |
| FREE |
| FREE |
| FREE |

**State of the RAM before initializing or declaring any variable within the program**

## RAM

umri

| |
|:---:|
| RESERVED |
| FREE |
| FREE |
| FREE |
| FREE |
| FREE |
| FREE |
| FREE |
| FREE |

**The state of RAM when the variable "umri" is declared**

## RAM

umri

| |
|:---:|
| RESERVED |
| FREE |
| FREE |
| FREE |
| FREE |
| FREE |
| FREE |
| FREE |

**Umri >= 18 ?**

**The state of the RAM when the selection condition is executed due to the stored value of age in the variable "umri"**

**RAM**

umri

| |
|---|
| 19 |
| FREE |
| FREE |
| FREE |
| FREE |
| FREE |
| FREE |
| FREE |

**Umri >= 18 ?**

**The state of the RAM when the user enters the value of age which is greater or equal to 18, and is stored int the variable "umri", hence used as a condition in the selection if statements to produce an output**

**RAM**

umri

| |
|---|
| 12 |
| FREE |
| FREE |
| FREE |
| FREE |
| FREE |
| FREE |
| FREE |

**Umri < 18 ?**

**The state of the RAM when the user enters the value of age which is less than 18, and is stored int the variable "umri", hence used as a condition in the selection if statements to produce an output**