

This is CS50 AP



Intro to C

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VS

C

Programs

when  clicked

say hello, world



```
#include <stdio.h>

int main(void)
{
    printf("hello, world\n");
}
```

Functions

say

hello, world

A Scratch script consisting of a single green "say [text v1]" hat block. The text input field contains "hello, world".

say
hello, world

```
printf("hello, world\n");
```

Loops

forever

say **hello, world**



```
while (true)
{
    printf("hello, world\n");
}
```

```
repeat (50)  
  say [hello, world]  
end
```



```
for (int i = 0; i < 50; i++)  
{  
    printf("hello, world\n");  
}
```

Variables

set **i** to **0**



```
int i = 0;
```

Boolean Expressions



A Scratch script consisting of a single green flag with a white arrow pointing right. Inside the arrow, there is an orange circle containing the variable "i". To the right of the circle is a less than sign "<". To the right of the less than sign is a white rectangle containing the number "50".

```
i < 50
```



$i < 50$

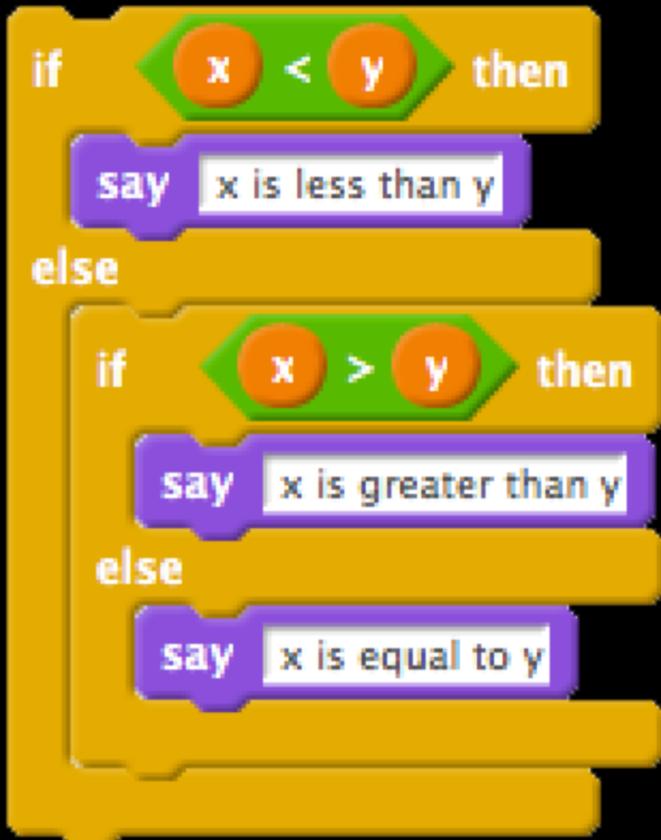


$x < y$

 $x < y$

Conditions

```
if [x < y] then  
    say [x is less than y]  
else  
    if [x > y] then  
        say [x is greater than y]  
    else  
        say [x is equal to y]
```



```
if (x < y)
{
    printf("x is less than y\n");
}
else if (x > y)
{
    printf("x is greater than y\n");
}
else
{
    printf("x is equal to y\n");
}
```

Arrays

item 1 of argv

item 1 of argv

argv[0]

Source Code

```
#include <stdio.h>

int main(void)
{
    printf("hello, world\n");
}
```

```
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{
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}
```

```
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```
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int main(void)
{
    printf("hello, world\n");
}
```

Machine Code

01111111	01000101	01001100	01000110	00000010	00000001	00000001	00000000
00000000	00000000	00000000	00000000	00000000	00000000	00000000	00000000
00000010	00000000	00111110	00000000	00000001	00000000	00000000	00000000
10110000	00000101	01000000	00000000	00000000	00000000	00000000	00000000
01000000	00000000	00000000	00000000	00000000	00000000	00000000	00000000
11010000	00010011	00000000	00000000	00000000	00000000	00000000	00000000
00000000	00000000	00000000	00000000	01000000	00000000	00111000	00000000
00001001	00000000	01000000	00000000	00100100	00000000	00100001	00000000
00000110	00000000	00000000	00000000	00000101	00000000	00000000	00000000
01000000	00000000	00000000	00000000	00000000	00000000	00000000	00000000
01000000	00000000	01000000	00000000	00000000	00000000	00000000	00000000
01000000	00000000	01000000	00000000	00000000	00000000	00000000	00000000
11111000	00000001	00000000	00000000	00000000	00000000	00000000	00000000
11111000	00000001	00000000	00000000	00000000	00000000	00000000	00000000
00001000	00000000	00000000	00000000	00000000	00000000	00000000	00000000
00000011	00000000	00000000	00000000	00000100	00000000	00000000	00000000
00111000	00000010	00000000	00000000	00000000	00000000	00000000	00000000
00111000	00000010	01000000	00000000	00000000	00000000	00000000	00000000
00111000	00000010	01000000	00000000	00000000	00000000	00000000	00000000
00011100	00000000	00000000	00000000	00000000	00000000	00000000	00000000

...

Compiler

CS50 IDE

cs50.io

The screenshot shows the CS50 IDE interface. At the top, there's a menu bar with options like CS50 IDE, File, Edit, Find, View, Go, Window, and Support. A toolbar below the menu includes icons for workspace, settings, and file operations. The main workspace area displays a file named "hello.c" with the following code:

```
1 #include <stdio.h>
2
3 int main(void)
4 {
5     printf("hello, world\n");
6 }
```

Below the workspace, there's a terminal window titled "workspace/" with the command prompt "~/workspace/ \$".

The screenshot shows the CS50 IDE interface. At the top, there's a browser bar with the URL <http://cs50.io/>. Below it is a menu bar with options: CS50 IDE, File, Edit, Find, View, Go, Window, Support, and a user icon. On the left, a sidebar shows a workspace folder (~/workspace) containing a file named `hello.c`. The main editor area displays the following C code:

```
1 #include <stdio.h>
2
3 int main(void)
4 {
5     printf("hello, world\n");
6 }
```

On the right side of the interface, there are two tabs: "Outline" and "Debugger". At the bottom, there's a terminal window titled "workspace/" with the prompt `~/workspace/ $`.

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