# Function pointers

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### What is a function pointer?

"Variable that stores the address of a function"

# Why?

You can pass a function into a function!

Example: qsort (ascending or descending order)

Pass a comparison function.

#### Where is a function located?

```
#include
                                               100010101010101
<stdio.h>
                                               000100101010111
int main()
                                               011111100110000
                                               001011001101010
printf("Hello")
                                               010111011100011
                           Compiler
                                               011111001111000
return 0;
                                               000110011110101
                                               010010010101000
  Source code
                                                Executable code
```

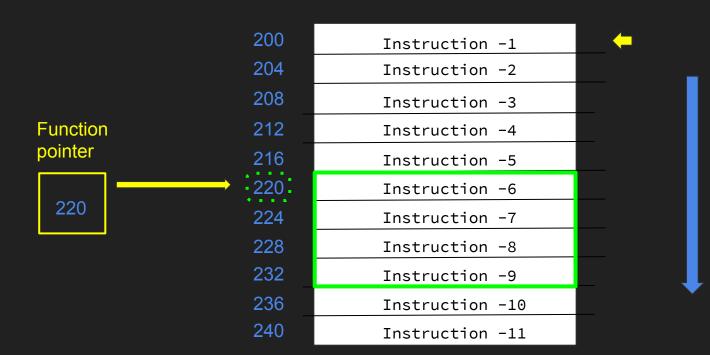
local pointer STACK local HEAP static uninitialised static/global zero BSS global uninitialised DATA global initialised nonzero constant CODE

HERE

output



# Code Segment



## How to define a function pointer

```
int Add(int a, int b)
{
    int (*p)(int, int);
    return a + b;
    p = &Add;
    (*p)(2, 3);
```

#### Warning

```
int (*p)(int, int);
```

VS

```
int *p(int, int); // Declaring a function that returns int *
```

#### Equal

```
int (*p)(int, int);
p = &Add;
(*p)(2, 3);
int (*p)(int, int);
p = Add;
p(2, 3);
```

#### Demo

Simple Example