

# 8. POINTERS

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# Review

**Recursion** (**mergesort.c**)

**Data Types**

# Overview



## Pointers and Arrays

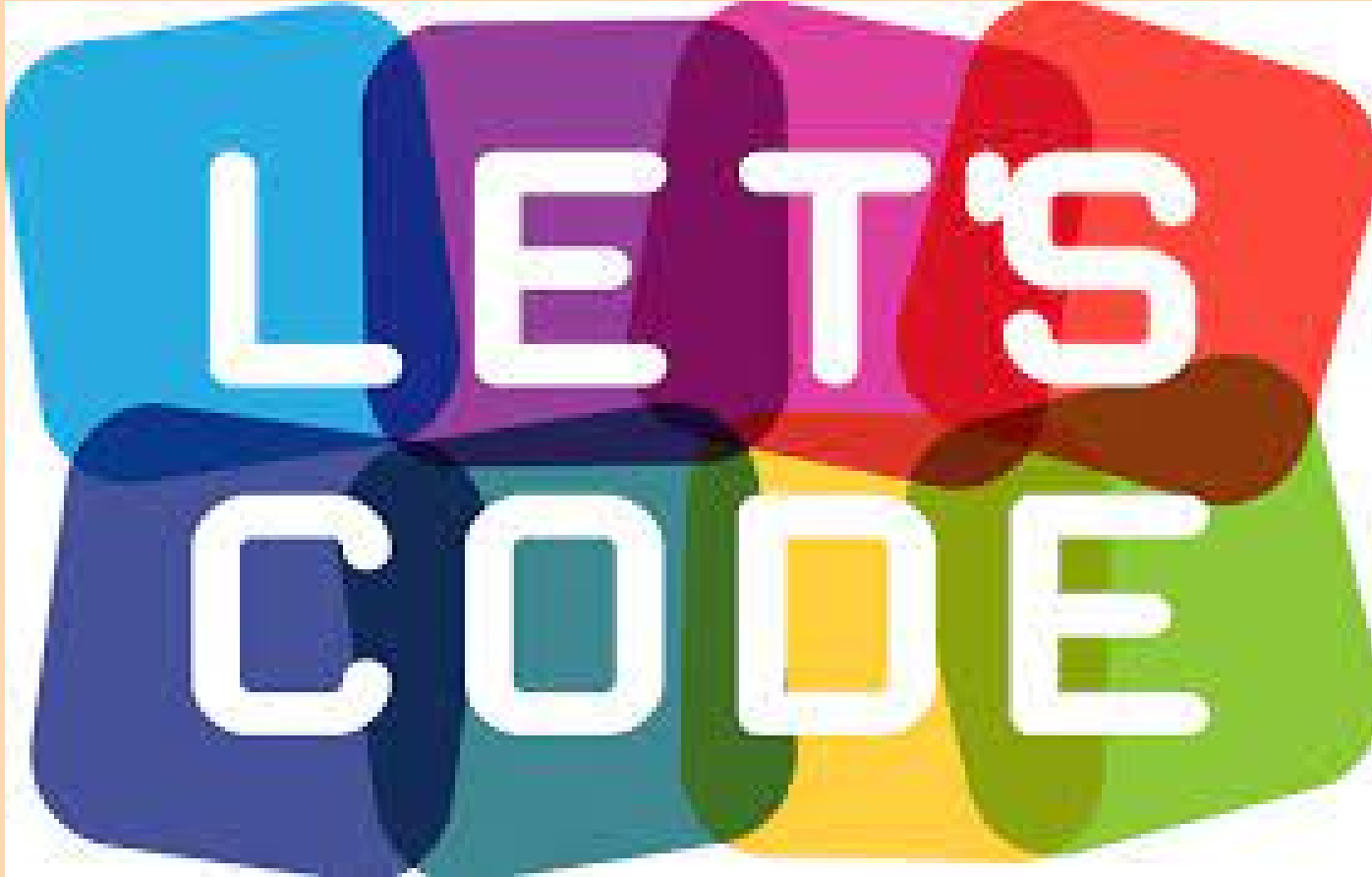
# Overview



**Pointer**

stackoverflow.com

**Pointers in Java -  
Stack Overflow**



**radius.c**

**selection.c**

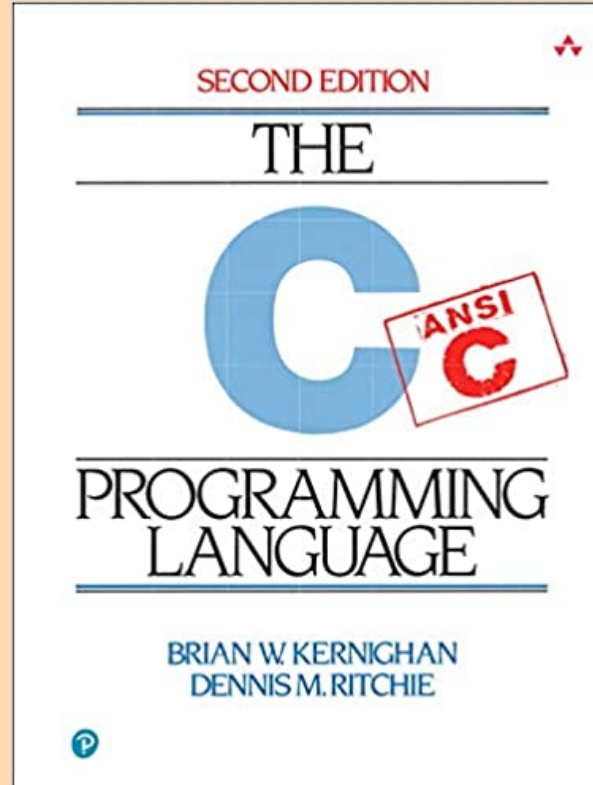
**merge.c**

# Variables (**radius.c**)

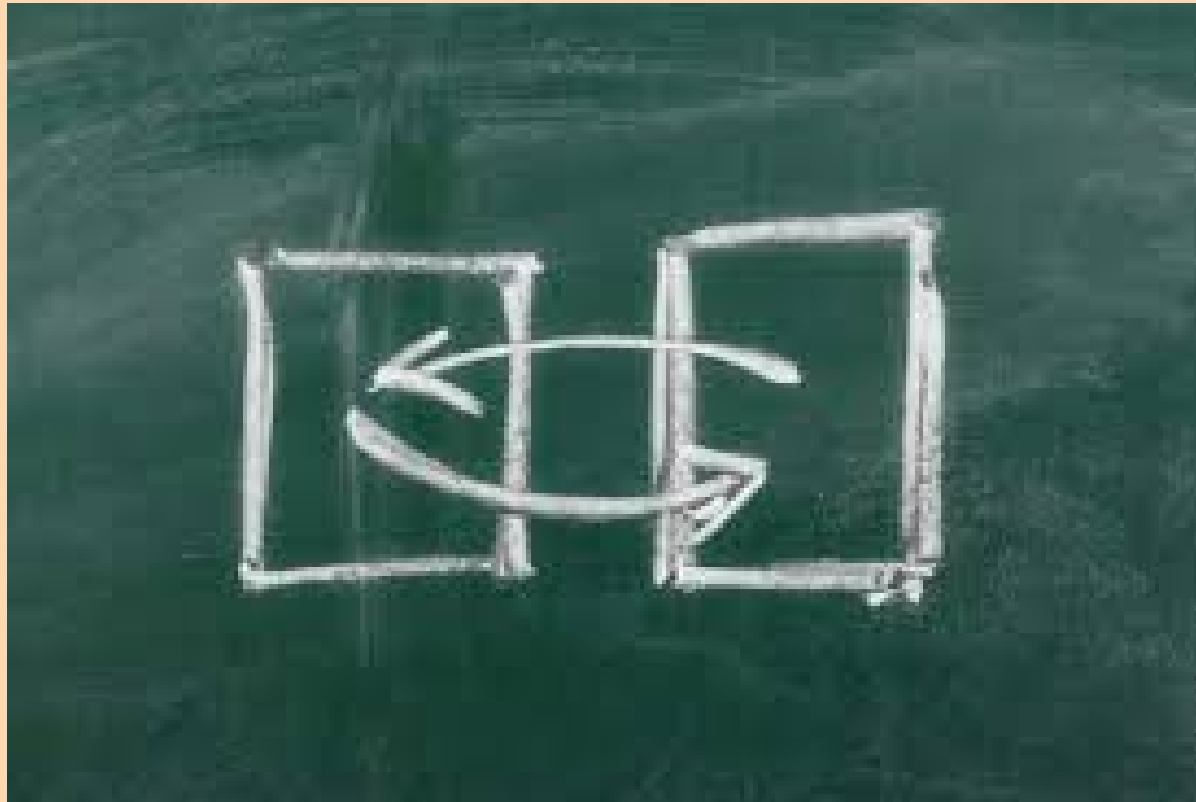
A **variable** has its *type*, *value*, and *address*.

A **variable** can be used as a *rvalue* or a *lvalue*.

"A *pointer* is a *variable* that contains the *address* of a variable."



# Swap (**selection-sort.c**)





# Pointers and Arrays (**selection-sort.c**)

- In **expressions**, the **name** of an array is a synonym for the **address of its first element**.
- But an array name is **NOT** a variable.

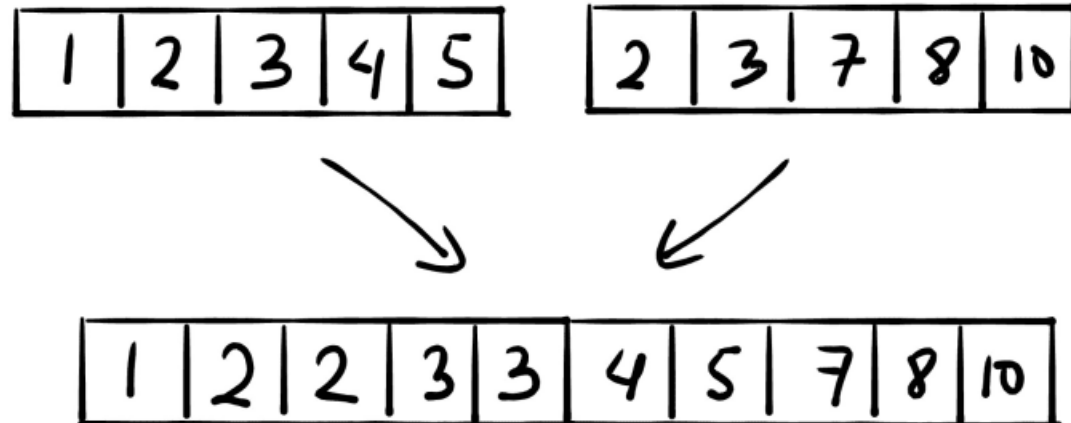
# Dynamic Memory Management (selection-sort.c)

void \*malloc(size\_t size);

void free(void \*ptr);

# Returning Pointers from Functions (merge.c)

Merge Two Sorted Arrays



# Returning Multiple Values from Functions (**scanf.c**)

```
while (scanf("%d", &numbers[++len]) != EOF);
```

