

## 1. Pointer Types in C:

### - int pointer:

```
int x = 10;
```

```
int *p = &x;
```

```
printf("%d", *p); // prints 10
```

### - float pointer:

```
float y = 5.5;
```

```
float *p = &y;
```

```
printf("%.1f", *p); // prints 5.5
```

### - char pointer:

```
char ch = 'A';
```

```
char *p = &ch;
```

```
printf("%c", *p); // prints A
```

### - array pointer:

```
int arr[] = {1, 2, 3};
```

```
int *p = arr;
```

```
printf("%d", *(p + 1)); // prints 2
```

### - function pointer:

```
void hello() {
```

```
    printf("Hi\n");
```

```
}
```

```
void (*p)() = hello;
```

```
p(); // calls hello()
```

## 2. Pass by Value vs Reference:

### - Pass by Value:

```
void fun(int x) {  
    x = 100;  
}  
  
int main() {  
    int a = 10;  
    fun(a);  
    printf("%d", a); // prints 10 (unchanged)  
}
```

### - Pass by Reference:

```
void fun(int *x) {  
    *x = 100;  
}  
  
int main() {  
    int a = 10;  
    fun(&a);  
    printf("%d", a); // prints 100 (changed)  
}
```