The five most common memory related errors in C++

1. Memory Leak

Forgetting to free memory.

```
int* p = new int {10};
// ❌ Oops! Forgot delete -> memory leak
```

2. Dangling Pointer / Use-After-Free

Using memory after it was deleted.

```
int* p = new int {10};
delete p;
*p = 5; // ❌ dangling pointer
```

3. Double Delete

Freeing the same memory twice.

```
int* p = new int {10};
delete p;
delete p; // ❌ double delete
```

4. Buffer Overflow / Out-of-Bounds Access

Writing outside allocated memory.

```
int arr[3];
arr[3] = 42; // ❌ out of bounds (valid: 0-2)
```

5. Uninitialized Memory / Wild Pointers

Using a variable before setting a value.

```
int* p;
*p = 7; // ❌ p points nowhere
```