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Functions and Structures in C++

Lecture 8

Asst. Lect. Ali Al-khawaja

Introduction

Functions

Q: Why do we use functions?

To divide the program into reusable and manageable parts.

Structures

Q: Why do we use structures?

To group related variables (like name, age, id).

Passing Structures to Functions

Pass Structure by Value

```
#include
using namespace std;

struct Student {
    string name;
    int age;
};

void display(Student s) {
    cout << "Name: " << s.name << ", Age: " << s.age << endl;
}

int main() {
    Student s1 = {"Ali", 20};
    display(s1); // Pass by value
    return 0;
}
```

Return Structure from Function

1

Define the Function

```
Student createStudent(string n, int a) {  
    Student s;  
    s.name = n;  
    s.age = a;  
    return s;  
}
```

2

```
Student s2 = createStudent("Zainab", 19);  
display(s2);
```

3

Use the Result

The returned structure can be used like any other structure variable.

Combining It All

1 Define the Structure

```
#include  
using namespace std;  
  
struct Book {  
    string title;  
    string author;  
    int year;  
};
```

2 Create Display Function

```
void printBook(Book b) {  
    cout << "Title: " << b.title << ", Author: " << b.author << ", Year: " << b.year << endl;  
}
```

Combining It All

3 Create Input Function

```
Book inputBook() {  
    Book b;  
    cout << "Enter title: ";  
    getline(cin, b.title);  
    cout << "Enter author: ";  
    getline(cin, b.author);  
    cout << "Enter year: ";  
    cin >> b.year;  
    cin.ignore(); // Clear input buffer  
    return b;  
}
```

4 Use in Main Function

```
int main() {  
    Book myBook = inputBook();  
    printBook(myBook);  
    return 0;  
}
```



Homework

-  Create a structure Employee with fields: name, salary, and department.

-  Write a function to read employee data.

-  Write another to display it.