Chapter: 9

C Programs with Mustafa Rahman

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Structures

a collection of values of different data types

EXAMPLE

For a student store the following :

- name (String)
- roll no (Integer)
- cgpa (Float)

Syntax

```
struct student {
    char name[100];
    int roll;
    float cgpa;
};
```

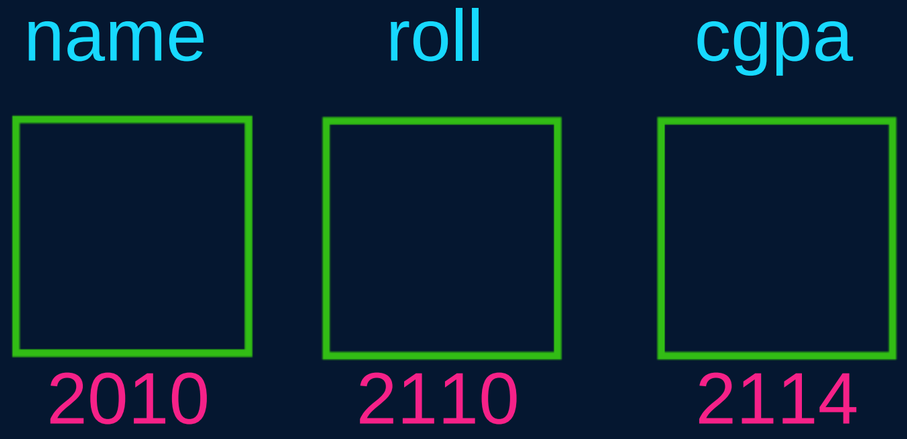
```
struct student s1;
s1.cgpa = 7.5;
```

Syntax

```
struct student {
    char name[100];
    int roll;
    float cgpa;
}
```

Structures in Memory

```
struct student {
    char name[100];
    int roll;
    float cgpa;
}
```



structures are stored in contiguous memory locations

Benefits of using Structures

- Saves us from creating too many variables

- Good data management/organization

Array of Structures

```
struct student ECE[100];

struct student COE[100];

struct student IT[100];
```

ACCESS

```
IT[0].roll = 200;
IT[0].cgpa = 7.6;
```

Initializing Structures

```
struct student s1 = { "shradha", 1664, 7.9};

struct student s2 = { "rajat", 1552, 8.3};

struct student s3 = { 0 };
```

Pointers to Structures

```
struct student s1;

struct student *ptr;

ptr =&s1;
```

Arrow Operator

(*ptr).code ⟷ ptr->code

Passing structure to function

```
//Function Prototype
void printInfo(struct student s1);
```

typedef Keyword

used to create alias for data types

```
typedef struct ComputerEngineeringStudent{
    int roll;
    float cgpa;
    char name[100];
} coe;
```

coe student1;