

EEM103 Computer Programming

Week13

- Structures in C

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struct – (yapı)

- **struct** in C is an user defined data type that allows to combine data items of different kinds.
 - Arrays are used to define type of variables that can hold several data items of the same kind.
- A variable defined in a struct is call **member** of that struct.
- Defining a struct;

```
struct struct_name {  
    /* member definitions */  
};
```

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struct – (yapı)

```

struct definition {
    struct person {
        char name[20] ;
        int age ;
        float height ;
    };
}

main()
{
    struct person p1;
    int k1;
}

```

Name of the struct
 Members (char array, int and float)
 p1 is a variable whose type is **struct person**.
 k1 is a variable whose type is **int**.

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Initializing structs & Initializing struct members

- Struct members are accessed by the help of **member access operator (.)**

– Usage: `variable_name.member_name`

```

struct person {
    char name[20] ;
    int age ;
    float height ;
};

main()
{
    struct person p1;
    scanf("%s", p1.name);
    p1.age = 25;
    p1.height = 1.75;
}

```

Be aware: **not person.name**

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```

struct person {
    char name[20] ;
    int age ;
    float height ;
};

main()
{
    struct person p1 = {"John", 23, 1.75};
}

```

A struct variable can be initialized by using 'initializer list', only in definition line.

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Arrow (->) operator

- Another way of accessing struct members is to use **arrow operator (->)** .
- But, it only works on struct pointers.

```

struct person {
    char name[20] ;
    int age ;
    float height ;
};

main()
{
    struct person p1;
    struct person * ptr;

    ptr = &p1 ;

    (*ptr).age = 25 ;
    ptr->age = 25;
    p1.age = 25 ;
}

```

} All are same

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typedef

- Typedef keyword is used to give a new name to a type.
 - E.g: to define a term BYTE for one-byte numbers;


```
typedef unsigned char byte;
```
 - After this type definition, variables belong to 'BYTE' type can be defined;


```
byte b1, b2;
```
 - Similarly struct definitions can be abbreviated by typedef;

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| | |
|---|---|
| <pre>struct person { char name[20] ; int age ; float height ; } ; typedef struct person Prs ; main() { Prs p1 ; p1.age = 25 ; }</pre> | <pre>typedef struct { char name[20] ; int age ; float height ; } Prs ; main() { Prs p1 ; p1.age = 25 ; }</pre> |
|---|---|

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