

Higher School of Applied Sciences of Tlemcen
1-year computer science course



The structures

Part 2

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Part 2

Structures and Pointers

Creating a Structure

```
struct Student {  
    int age ;  
    float score;  
};  
int main() {  
    struct Student e,*p;  
    return 0;}  
}
```

```
typedef struct Student {  
    int age ;  
    float score;  
} Student;  
int main() {  
    Student e,*p;  
    return 0;}  
}
```

Accessing the Structure's Elements

```
#include<stdio.h>
typedef struct Student{
int age ;
float score;} Student;
int main() {
    Student e,*p;
    p=&e;
    p->age=23;
    p->score=15,5;
    printf("The age is %d\n",p->age);
    printf("The score is %.2f\n",p->score);
    return 0;}
```

The age is 23.00
The score is 15.50

Accessing the Structure's Elements

```
#include<stdio.h>
struct Student{
int age ;
float score ;};
int main() {
struct Student e={23,15.5},*p;
p=&e;
printf("The age is %d\n",p->age);
printf("The score is %.2f\n",p->score);
return 0;}

```

The age is 23.00
The score is 15.50

Modifying the Values

```
#include<stdio.h>
```

```
struct Student{
```

```
int age ;
```

```
float score ;};
```

```
int main() {
```

```
struct Student e={23,15.5},*p;
```

```
p=&e;
```

```
p->age=19;
```

```
p->note=8.5;
```

```
printf("The age is %d\n",e.age);
```

```
printf("The score is %.2f\n",e.score);
```

```
return 0;}
```

The age is 19.00

The score is 8.50

Reading a Structure

```
#include<stdio.h>
struct Student{
int age ;
float score ;};
int main() {
struct Student e, *p;
p=&e;
printf("Provide the age \n");
scanf ("%d",&p->age);
printf("Provide the score \n");
scanf("%f", &p-> score);
printf("The age is %d \n",e.age);
printf("The score is %.2f \n",e.score);
return 0;}
```

Provide the age

12

Provide the score

6

The age is 12.00

The score is 6.00

```
struct Student{  
    char name[20] ;  
    char first_name[20] ;  
};
```


Structures

Pointers & String

Accessing the Structure's Elements

```
#include<stdio.h>
#include<string.h>
struct Student{
char name[20] ;
char first_name[20] ;};
int main() {
struct Student e,*p;
p=&e;
strcpy (p->name, "Youbi" );
strcpy (p-> first_name, "Mohamed" );
printf("Name is %s \n", p-> name);
printf("First name first name is%s \n", p-> first_name);
return 0;}
```

Name is Youbi
First name is Mohamed

Reading a Structure

```
#include<stdio.h>
#include<string.h>
struct Student{
char name[20] ;
char first_name[20] ;};
int main() {
struct Student e,*p;
p=&e;
printf("Provide the name\n");
gets(p->name);
printf("Provide the first name\n");
gets(p->first_name);
printf("Name is  %s \n",p->name);
printf("First name is  %s \n", p->first_name);
return 0;}
```

Name is Youbi
First name is Mohamed

```
struct Student{  
    char name[20] ;  
    float score[3]; };
```

Accessing the Structure's Elements

```
#include<stdio.h>
#include<string.h>
struct Student{
char name[20] ;
float score[3]; };
int main() { int i;
struct Student e,*p;
p=&e;
strcpy (p->name, "Youbi" );
p->score[0]=10;
p-> score[1]=15;
p-> score[3]=8;
printf("Name is %s\n", p->name);
for(i=0;i<3;i++)
printf("Score %d=%d \n",i+1, p-> score[i]);
return 0;}
```

```
Name is Youbi
Score1=10.00
Score 2=15.00
Score 3=0.00
```

```
#include<stdio.h>
#include<string.h>
struct Student{
char name[20] ;
float score[3]; };
int main() { int i;
struct Student e,*p;
p=&e;
printf("Provide the name\n");
gets(p->name);
printf("Provide the scores\n");
for(i=0;i<3;i++)
scanf("%f",&p->score [i]);
printf("Name is %s\n", p->name);
for(i=0;i<3;i++)
printf("Score %d=%.2f \n",i+1, p-> score[i]);
return 0; }
```

```
Provide the name
Youbi
Provide the scores
10
2
15
Name is Youbi
Score 1=10.00
Score 2=2.00
Score 3=15.00
```