DAILY ASSESSMENT

Date:	**19-06-2020**	**Name:**	**Sushmitha R Naik**
Course:	**C Programming**	**USN:**	**4AL17EC090**
Topic:	• **Structures & Unions** • **Memory Management**	**Semester & Section:**	**6th & B**
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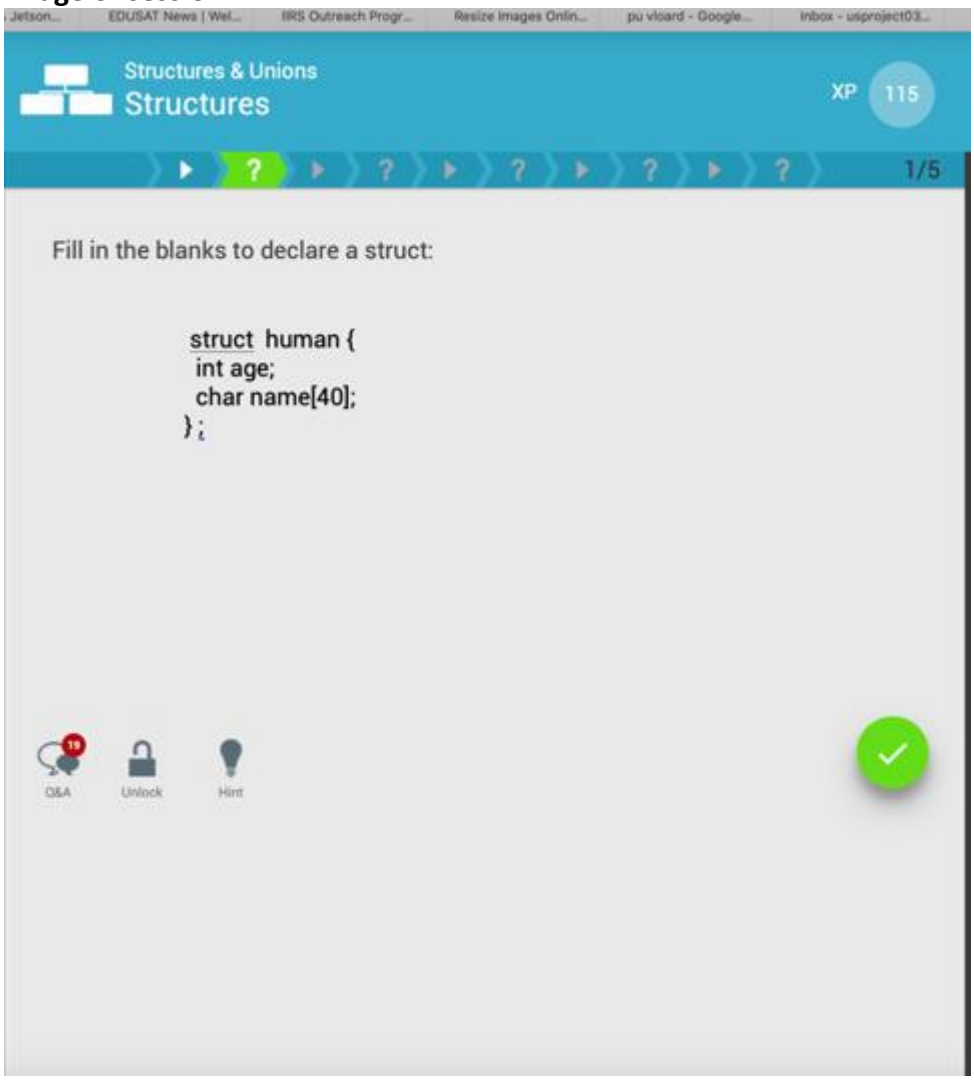
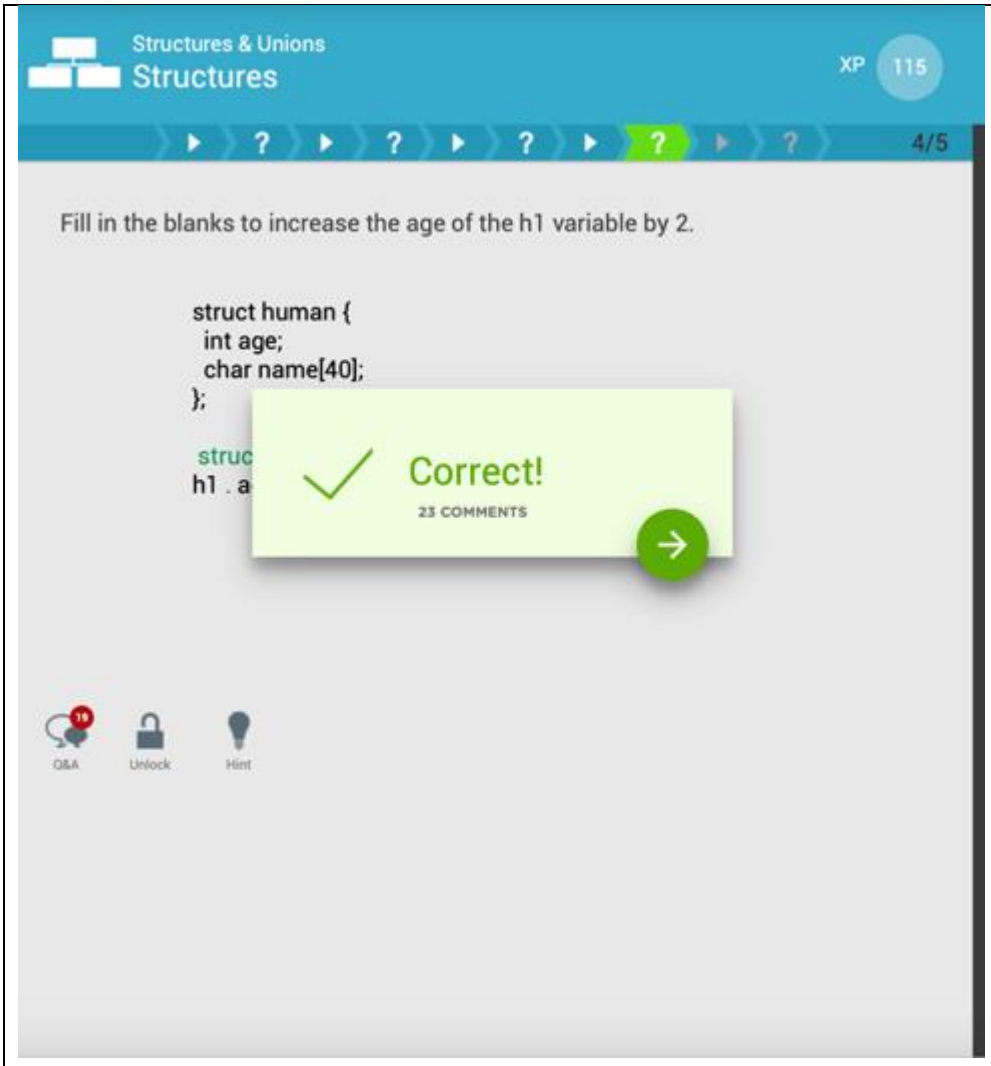
FORENOON SESSION DETAILS

Image of session





Report –

A structure is a user-defined data type available in C that allows to combining data items of different kinds. Structures are used to represent a record.

Defining a structure: To define a structure, you must use the struct statement. The struct statement defines a new data type, with more than or equal to one member. The format of the struct statement is as follows:

```
struct [structure name]
{
   member definition;
   member definition;
   ...
```

```
  member definition;
};
```

Union

A union is a special data type available in C that allows storing different data types in the same memory location. You can define a union with many members, but only one member can contain a value at any given time. Unions provide an efficient way of using the same memory location for multiple purposes.

Defining a Union: To define a union, you must use the union statement in the same way as you did while defining a structure. The union statement defines a new data type with more than one member for your program. The format of the union statement is as follows:

```
union [union name]
{
  member definition;
  member definition;
  ...
  member definition;
};
```

Similarities between Structure and Union

- **Both are user-defined data types used to store data of different types as a single unit.**
- **Their members can be objects of any type, including other structures and unions or arrays. A member can also consist of a bit field.**
- **Both structures and unions support only assignment = and sizeof operators. The two structures or unions in the assignment must have the same members and member types.**
- **A structure or a union can be passed by value to functions and returned by value by functions. The argument must have the same type as the function parameter. A structure or union is passed by value just like a scalar variable as a corresponding parameter.**
- **'.' operator is used for accessing members.**

Error Handling

Error handling features are not supported by C programming, which is known as exception handling in C++ or in other OOP (Object Oriented Programming) languages. However, there are few methods and variables available in C's header file *error.h* that is used to locate errors using return values of the function call. In C, the function return *NULL* or *-1* value in case of any error, and there is a global variable *errno* which sets the error code/number. Hence, the return value can be used to check error while programming.

```
/* Divided By zero Error i.e. Exception*/#include <stdio.h>
#include <stdlib.h>
```

```
void main() {
  int ddend = 60;
  int dsor = 0;
  int q;

  if( dsor == 0){
    fprintf(stderr, "Division by zero! Exiting...\n");
    getch();
    exit(-1);
  }
  q = ddend / dsor;
  fprintf(stderr, "Value of quotient : %d\n", q);
  getch();
  exit(0);
}
```

File Handling in C

So far the operations using C program are done on a prompt / terminal which is not stored anywhere. But in the software industry, most of the programs are written to store the information fetched from the program. One such way is to store the fetched information in a file. Different operations that can be performed on a file are:

1. **Creation of a new file (fopen with attributes as “a” or “a+” or “w” or “w++”)**
2. **Opening an existing file (fopen)**
3. **Reading from file (fscanf or fgets)**
4. **Writing to a file (fprintf or fputs)**
5. **Moving to a specific location in a file (fseek, rewind)**
6. **Closing a file (fclose)**