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Struct - Worksheet

```
struct Product
{
      string description; // Product description
      int partNum; // Part number
      double cost; // Product cost
};
```

1. Write a definition for an array of 100 `Product` structures. Do not initialize the array.

```
Product products[100];
```

2. Write a loop that will step through the entire array you defined in Question 1, setting all the product descriptions to an empty string, all part numbers to zero, and all costs to zero.

```
for(int i = 0; i < 100; i ++)
{
      products[i].description = “”;
      products[i].partNum = 0;
      products[i].cost = 0;
}
```

3. Write the statements that will store the following data in the first element of the array you defined in Question 1:

   Description: Claw hammer

   Part Number: 547

   Part Cost: $8.29

```
products[0] = {“Claw hammer”, 547, 8.29};
```

4. Write a loop that will display the contents of the entire array you created in Question 1.

```
for (int i = 0; i < 100; i++)
{
      std::cout << “Product #” << i+1 << “\n”;
      std::cout << “Description: ” << products[i].description << std::endl;
      std::cout << “Part Number: “ << products[i].partNum << “\n”;
      std::cout << “Cost: ” << products[i].cost << “\n”;
}
```

5. Write a structure declaration named `Measurement`, with the following members:

`miles`, an integer

`meters`, a `long` integer

```
struct Measurement
{
      int miles;
      long int meters;
};
```

6. Write a structure declaration named `Destination`, with the following members:

`city`, a `string` object

`distance`, a `Measurement` structure (declared in Question 5)

Also define a variable of this structure type.

```
struct Destination
{
      std::string city;
      Measurement distance;
}

Destination LA = {“Los Angeles”, {100, 160934}};
```

7. Write statements that store the following data in the variable you defined in Question 6:

City: Tupelo

Miles: 375

Meters: 603,375

```
Destination TU = {“Tupelo”, {375, 603375}};
```

Assume the following structure declaration exists for Questions 8-10:

```
struct Rectangle
{
   int length;
   int width;
};
```

8. Write a function that accepts a `Rectangle` structure as its argument and displays the structure's contents on the screen.

```
void PrintRectangle(Rectangle instance)
{
      std::cout << “Length: “ << instance.length << “\n”;
```

```
        std::cout << “Width: “ << instance.width << “\n”;
}
```

9. Write a function that uses a `Rectangle` structure reference variable as its parameter and stores the user's input in the structure's members.

```
void AssignRectangle(Rectangle &instance)
{
        std::cout << “Length: “;
        std::cin >> instance.length;
        std::cout << “\nWidth: “;
        std::cin >> instance.width;
}
```

10. Write a function that returns a `Rectangle` structure. The function should store the user's input in the members of the structure before returning it.

```
Rectangle GetRectangle(void)
{
        Rectangle temp;
        std::cout << “Length: “;
        std::cin >> temp.length;
        std::cout << “\nWidth: “;
        std::cin >> temp.width;

        return temp;
}
```