The Factory Assignment

Consider the following code.

#include <iostream>

using namespace std;

class Product {

private:

string name;

public:

Product(string name): name(name) {}

string getName() {

return name;

}

};

class Factory {

private:

string location;

int capacity;

public:

Factory(string location, int capacity): location(location), capacity(capacity) {}

void makeProduct(Product product);

};

void Factory::makeProduct(Product product) {

if (capacity > 0) {

cout << "Factory is now making " << product.getName() << endl;

} else {

cout << "Factory out of capacity." << endl;

}

}

int main() {

// TODO: your code goes here

return 0;

}

In main, create at least 2 factories and 5 products. Call makeProduct to start making the products at the factories.

**Code guidelines:**

* **Good style:** Use proper indentation, good naming conventions and break code up into small functions that do one thing each.
* **Usability:** Always prompt the user for input so they know what to do and provide meaningful output messages.
* **Input Validation:** The program should not accept invalid input, prompt the user to reenter an input that is invalid.
* **Documentation:** Add a comments that document what each part of your code does, at a minimum each function should be clearly documented by describing the expected argument values and what the function returns.
* **Testing:** Make sure your code compiles and works.

| **ID** | **Goal** | **Goal Set Name** | **Category** |
| --- | --- | --- | --- |
| CIS\_161\_CC\_05\_07 | CIS\_161\_CC\_05\_07: Show how to pass objects as arguments of functions and return objects from functions | Computer Information Systems, Mobile Development Technology, Data Science (CIS, CSC, DAT, INF, MDT) | CIS 161 |
| CIS\_161\_CC\_05\_05 | CIS\_161\_CC\_05\_05: Initialize objects through the use of constructor functions | Computer Information Systems, Mobile Development Technology, Data Science (CIS, CSC, DAT, INF, MDT) | CIS 161 |
| CIS\_161\_CC\_05\_02 | CIS\_161\_CC\_05\_02: Use objects for information hiding | Computer Information Systems, Mobile Development Technology, Data Science (CIS, CSC, DAT, INF, MDT) | CIS 161 |
| CIS\_161\_CC\_05\_01 | CIS\_161\_CC\_05\_01: Demonstrate the advantages of using classes in C++. | Computer Information Systems, Mobile Development Technology, Data Science (CIS, CSC, DAT, INF, MDT) | CIS 161 |