

Trạng thái	Đã xong
Bắt đầu vào lúc	Thứ Tư, 30 tháng 4 2025, 6:10 PM
Kết thúc lúc	Thứ Tư, 30 tháng 4 2025, 6:22 PM
Thời gian thực hiện	11 phút 34 giây

Câu hỏi 1

Đúng

Đạt điểm 1,00

Mô tả tiếng Việt:

Cho struct **SCP** lưu trữ thông tin các vật thể dị thường được mô tả như sau:

```
struct SCP {
    int id;
    int objClass;
    string speConProcedures;
    string description;
    string* addendums;
    int numAddendums;
};
```

Hiện thực một hàm với prototype sau:

```
SCP createSCP(int id, int objClass, string
speConProcedures, string description, string* addendums,
int numAddendums);
```

Hàm có chức năng khởi tạo instance của struct SCP với các thông tin đã truyền vào, sau đó trả về instance đó.

Ghi chú: (Các) thư viện **iostream** và **string** đã được khai báo, và namespace **std** đã được sử dụng.

English version:

Struct **SCP** used to store information about paranormal objects is declared as below:

```
struct SCP {
    int id;
    int objClass;
    string speConProcedures;
    string description;
    string* addendums;
    int numAddendums;
};
```

Implement the function with the following prototype:

```
SCP createSCP(int id, int objClass, string
speConProcedures, string description, string* addendums,
int numAddendums);
```

The function returns a new instance of struct **SCP** with the passed parameters.

Note: Libraries **iostream** and **string** have been imported, and namespace **std** has been used.

For example:

Test	Result



<pre>string* addendums = new string[2]; addendums[0] = "Document #055-1: An Analysis of SCP-055\nThe author puts forward the hypothesis that SCP-055 was never formally acquired."; addendums[1] = "Document #055-2: Report of Dr. John Marachek\nSurvey team #19-055-127BXE was successfully able to enter SCP-055's container and ascertain the appearance."; SCP obj = createSCP(55, 2, "Object is kept within a five (5) by five (5) by two point five (2.5) meter square room.", "All known information about the object is that it is not round.", addendums, 2); for (int i = 0; i < 2; i++) cout << obj.addendums[i] << "\n"; delete [] addendums;</pre>	<p>Document #055-1: An Analysis of SCP-055</p> <p>The author puts forward the hypothesis that SCP-055 was never formally acquired.</p> <p>Document #055-2: Report of Dr. John Marachek</p> <p>Survey team #19- 055-127BXE was successfully able to enter SCP-055's container and ascertain the appearance.</p>
<pre>string* addendums = new string[2]; addendums[0] = "Document #055-1: An Analysis of SCP-055\nThe author puts forward the hypothesis that SCP-055 was never formally acquired."; addendums[1] = "Document #055-2: Report of Dr. John Marachek\nSurvey team #19-055-127BXE was successfully able to enter SCP-055's container and ascertain the appearance."; SCP obj = createSCP(55, 2, "Object is kept within a five (5) by five (5) by two point five (2.5) meter square room.", "All known information about the object is that it is not round.", addendums, 2); cout << obj.id; delete [] addendums;</pre>	55
<pre>string* addendums = new string[2]; addendums[0] = "Document #055-1: An Analysis of SCP-055\nThe author puts forward the hypothesis that SCP-055 was never formally acquired."; addendums[1] = "Document #055-2: Report of Dr. John Marachek\nSurvey team #19-055-127BXE was successfully able to enter SCP-055's container and ascertain the appearance."; SCP obj = createSCP(55, 2, "Object is kept within a five (5) by five (5) by two point five (2.5) meter square room.", "All known information about the object is that it is not round.", addendums, 2); cout << obj.objClass; delete [] addendums;</pre>	2
	Object is kept within a five (5) by five (5) by two point five (2.5) meter square room.

<pre>string* addendums = new string[2]; addendums[0] = "Document #055-1: An Analysis of SCP-055\nThe author puts forward the hypothesis that SCP-055 was never formally acquired."; addendums[1] = "Document #055-2: Report of Dr. John Marachek\nSurvey team #19-055-127BXE was successfully able to enter SCP-055's container and ascertain the appearance."; SCP obj = createSCP(55, 2, "Object is kept within a five (5) by five (5) by two point five (2.5) meter square room.", "All known information about the object is that it is not round.", addendums, 2); cout << obj.speConProcedures;</pre>	
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<pre>string* addendums = new string[2]; addendums[0] = "Document #055-1: An Analysis of SCP-055\nThe author puts forward the hypothesis that SCP-055 was never formally acquired."; addendums[1] = "Document #055-2: Report of Dr. John Marachek\nSurvey team #19-055-127BXE was successfully able to enter SCP-055's container and ascertain the appearance."; SCP obj = createSCP(55, 2, "Object is kept within a five (5) by five (5) by two point five (2.5) meter square room.", "All known information about the object is that it is not round.", addendums, 2); for (int i = 0; i < obj.numAddendums; i++) cout << obj.addendums[i] << "\n"; delete [] addendums;</pre>	<p>Document #055-1: An Analysis of SCP-055 The author puts forward the hypothesis that SCP-055 was never formally acquired. Document #055-2: Report of Dr. John Marachek Survey team #19- 055-127BXE was successfully able to enter SCP-055's container and ascertain the appearance.</p>

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Answer: (penalty regime: 0 %)

Reset answer

```
1 SCP createSCP(int id, int objClass, string speCon
2 // Student answer
3 SCP SCP1;
4 SCP1.id = id;
5 SCP1.objClass = objClass;
6 SCP1.speConProcedures = speConProcedures;
7 SCP1.description = description;
8 SCP1.addendums = addendums;
9 SCP1.numAddendums = numAddendums;
10 return SCP1;
11 }
```

Passed all tests! ✓

Câu hỏi 2

Đúng

Đạt điểm 1,00

Mô tả tiếng Việt:

Cho struct **SCP** lưu trữ thông tin các vật thể dị thường được mô tả như sau:

```
struct SCP { int id; int objClass; string
speConProcedures; string description; string* addendums;
int numAddendums; };
```

Hiện thực một hàm với prototype sau:

```
string convertToString(SCP obj);
```

Hàm trả về một string duy nhất, với format chuẩn được quy định bởi tổ chức:

```
Item #: SCP-<Mã định danh, thêm 0 vào trước nếu chưa đủ 3
chữ số>
Object Class: <Safe nếu objClass là 0, Euclid nếu là 1,
Keter nếu là 2>
Special Containment Procedures: <Quy trình quản thúc đặc
biệt>
Description: <Mô tả vật thể>
<Phụ lục 0>
<Phụ lục 1>
...
<Phụ lục n>
```

Tham khảo ví dụ để hiểu về format đầu ra.

Ghi chú: (Các) thư viện `iostream`, `sstream` và `string` đã được khai báo, và `namespace std` đã được sử dụng.

English version:

Struct `SCP` used to store information about paranormal objects is declared as below:

```
struct SCP { int id; int objClass; string
speConProcedures; string description; string* addendums;
int numAddendums; };
```

Implement the function with the following prototype:

```
string convertToString(SCP obj);
```

The function returns a string with the following format:

```
Item #: SCP-<Item number, zero-left-padded until it has 3
or more digits.>
Object Class: <Safe if objClass is 0, Euclid if 1, Keter
if 2>
Special Containment Procedures: <The specification of the
object's special containment procedures.>
Description: <The object's description.>
<Addendum 0>
<Addendum 1>
...
<Addendum n>
```

Refer to the example to understand the format.

Note: Libraries `iostream` and `string` have been imported, and `namespace std` has been used.

For example:

Test	Result

<pre>string* addendums = new string[2]; addendums[0] = "Document #055-1: An Analysis of SCP-055\nThe author puts forward the hypothesis that SCP-055 was never formally acquired."; addendums[1] = "Document #055-2: Report of Dr. John Marachek\nSurvey team #19-055- 127BXE was successfully able to enter SCP-055's container and ascertain the appearance."; SCP obj {55, 2, "Object is kept within a five (5) by five (5) by two point five (2.5) meter square room.", "All known information about the object is that it is not round.", addendums, 2}; cout << convertToString(obj); delete [] addendums;</pre>	<pre>Item #: SCP-055 Object Class: Keter Special Containment Procedures: Object is kept within a five (5) by five (5) by two point five (2.5) meter square room. Description: All known information about the object is that it is not round. Document #055-1: An Analysis of SCP-055 The author puts forward the hypothesis that SCP- 055 was never formally acquired. Document #055-2: Report of Dr. John Marachek Survey team #19-055- 127BXE was successfully able to enter SCP-055's container and ascertain the appearance.</pre>
<pre>SCP obj {2, 1, "SCP-002 is to remain connected to a suitable power supply at all times.", "SCP- 002 resembles a tumorous, fleshy growth with a volume of roughly 60 cubed meter.", nullptr, 0}; cout << convertToString(obj);</pre>	<pre>Item #: SCP-002 Object Class: Euclid Special Containment Procedures: SCP-002 is to remain connected to a suitable power supply at all times. Description: SCP-002 resembles a tumorous, fleshy growth with a volume of roughly 60 cubed meter.</pre>
<pre>SCP obj {500, 0, "SCP-500 must be stored in a cool and dry place away from bright light.", "SCP-500 is a small plastic can which at the time of writing contains forty-seven (47) red pills.", nullptr, 0}; cout << convertToString(obj);</pre>	<pre>Item #: SCP-500 Object Class: Safe Special Containment Procedures: SCP-500 must be stored in a cool and dry place away from bright light. Description: SCP-500 is a small plastic can which at the time of writing contains forty-seven (47) red pills.</pre>
<pre>SCP obj {1487, 1, "SCP-1487 is to be kept in Humanoid Containment Chamber #3821 at Site 23.", "SCP- 1487 is a female humanoid of Filipino descent. The entity is fifteen (15) years old and measures 1.7m in height and 70kg in weight.", nullptr, 0}; cout << convertToString(obj);</pre>	

	<p>Item #: SCP-1487 Object Class: Euclid Special Containment Procedures: SCP-1487 is to be kept in Humanoid Containment Chamber #3821 at Site 23. Description: SCP-1487 is a female humanoid of Filipino descent. The entity is fifteen (15) years old and measures 1.7m in height and 70kg in weight.</p>
<pre>string* addendums = new string[1]; addendums[0] = "Site 81/715 Protocol: [ACCESS RESTRICTED]\nPlease Access Using 715/5 Authorization Code"; SCP obj {715, 0, "SCP-715 is to be contained at its point of origin within the ---- City Mall in ----, Ohio.", "SCP-715 is a \"Take Your Own Photo\" fotomat model photo booth manufactured by the Sony corporation in 1972.", addendums, 1}; cout << convertToString(obj); delete [] addendums;</pre>	<p>Item #: SCP-715 Object Class: Safe Special Containment Procedures: SCP-715 is to be contained at its point of origin within the -- -- City Mall in -- --, Ohio. Description: SCP-715 is a "Take Your Own Photo" fotomat model photo booth manufactured by the Sony corporation in 1972. Site 81/715 Protocol: [ACCESS RESTRICTED] Please Access Using 715/5 Authorization Code</p>
<pre>string* addendums = new string[2]; addendums[0] = "Document #055-1: An Analysis of SCP-055\nThe author puts forward the hypothesis that SCP-055 was never formally acquired."; addendums[1] = "Document #055-2: Report of Dr. John Marachek\nSurvey team #19-055- 127BXE was successfully able to enter SCP-055's container and ascertain the appearance."; SCP obj {55, 2, "Object is kept within a five (5) by five (5) by two point five (2.5) meter square room.", "All known information about the object is that it is not round.", addendums, 2}; cout << convertToString(obj); delete [] addendums;</pre>	

	<p>Item #: SCP-055</p> <p>Object Class: Keter</p> <p>Special Containment Procedures: Object is kept within a five (5) by five (5) by two point five (2.5) meter square room.</p> <p>Description: All known information about the object is that it is not round.</p> <p>Document #055-1: An Analysis of SCP-055</p> <p>The author puts forward the hypothesis that SCP-055 was never formally acquired.</p> <p>Document #055-2: Report of Dr. John Marachek</p> <p>Survey team #19-055-127BXE was successfully able to enter SCP-055's container and ascertain the appearance.</p>
<pre>SCP obj {2, 1, "SCP-002 is to remain connected to a suitable power supply at all times.", "SCP-002 resembles a tumorous, fleshy growth with a volume of roughly 60 cubed meter.", nullptr, 0}; cout << convertToString(obj);</pre>	<p>Item #: SCP-002</p> <p>Object Class: Euclid</p> <p>Special Containment Procedures: SCP-002 is to remain connected to a suitable power supply at all times.</p> <p>Description: SCP-002 resembles a tumorous, fleshy growth with a volume of roughly 60 cubed meter.</p>
<pre>SCP obj {500, 0, "SCP-500 must be stored in a cool and dry place away from bright light.", "SCP-500 is a small plastic can which at the time of writing contains forty-seven (47) red pills.", nullptr, 0}; cout << convertToString(obj);</pre>	<p>Item #: SCP-500</p> <p>Object Class: Safe</p> <p>Special Containment Procedures: SCP-500 must be stored in a cool and dry place away from bright light.</p> <p>Description: SCP-500 is a small plastic can which at the time of writing contains forty-seven (47) red pills.</p>
<pre>SCP obj {1487, 1, "SCP-1487 is to be kept in Humanoid Containment Chamber #3821 at Site 23.", "SCP-1487 is a female humanoid of Filipino descent. The entity is fifteen (15) years old and measures 1.7m in height and 70kg in weight.", nullptr, 0}; cout << convertToString(obj);</pre>	

	<p>Item #: SCP-1487 Object Class: Euclid Special Containment Procedures: SCP-1487 is to be kept in Humanoid Containment Chamber #3821 at Site 23. Description: SCP-1487 is a female humanoid of Filipino descent. The entity is fifteen (15) years old and measures 1.7m in height and 70kg in weight.</p>
<pre>string* addendums = new string[1]; addendums[0] = "Site 81/715 Protocol: [ACCESS RESTRICTED]\nPlease Access Using 715/5 Authorization Code"; SCP obj {715, 0, "SCP-715 is to be contained at its point of origin within the ---- City Mall in ----, Ohio.", "SCP-715 is a \"Take Your Own Photo\" fotomat model photo booth manufactured by the Sony corporation in 1972.", addendums, 1}; cout << convertToString(obj); delete [] addendums;</pre>	<p>Item #: SCP-715 Object Class: Safe Special Containment Procedures: SCP-715 is to be contained at its point of origin within the -- -- City Mall in -- --, Ohio. Description: SCP-715 is a "Take Your Own Photo" fotomat model photo booth manufactured by the Sony corporation in 1972. Site 81/715 Protocol: [ACCESS RESTRICTED] Please Access Using 715/5 Authorization Code</p>

Answer: (penalty regime: 0 %)

Reset answer

```
1 string convertToString(SCP obj) {
2     stringstream ss;
3
4     // 1. Dòng mã số SCP (pad số cho đủ 3 chữ số)
5     ss << "Item #: SCP-";
6     if (obj.id < 10) ss << "00";
7     else if (obj.id < 100) ss << "0";
8     ss << obj.id << "\n";
9
10    // 2. Dòng phân loại
11    ss << "Object Class: ";
12    if (obj.objClass == 0) ss << "Safe";
13    else if (obj.objClass == 1) ss << "Euclid";
14    else if (obj.objClass == 2) ss << "Keter";
15    ss << "\n";
16 }
```

```

17 // 3. Dòng quy trình quản thúc đặc biệt
18 ss << "Special Containment Procedures: " << obj.speConProcedures << "\n";
19
20 // 4. Dòng mô tả
21 ss << "Description: " << obj.description << "\n";
22
23 // 5. Các phụ lục nếu có
24 for (int i = 0; i < obj.numAddendums; ++i) {
25     ss << obj.addendums[i] << "\n";
26 }
27
28 return ss.str();
29 }
30

```

Passed all tests! ✓

Câu hỏi 3

Đúng

Đạt điểm 1,00

Mô tả tiếng Việt:

Cho struct **SCP** lưu trữ thông tin các vật thể dị thường được mô tả như sau:

```

struct SCP {
    int id;
    int objClass;
    string speConProcedures;
    string description;
    string* addendums;
    int numAddendums;
};

```

Một đối tượng dị thường là SCP-038 có khả năng tạo bản sao của các vật thể dị thường khác, ví dụ như SCP-500 (thuốc vạn ứng). Khi đối tượng gốc bị tiêu thụ/phá hủy, bản sao vẫn tồn tại độc lập.

Hiện thực một hàm với prototype sau:

```
SCP* cloneSCP(SCP* original);
```

Hàm có chức năng tạo một bản sao con trỏ loại SCP chứa các thông tin như đối tượng gốc original, sau đó trả về con trỏ đó. Lưu ý về shallow copy và deep copy.

Ghi chú: (Các) thư viện **iostream** và **string** đã được khai báo, và namespace **std** đã được sử dụng.

English version:

Struct **SCP** used to store information about paranormal objects is declared as below:

```

struct SCP {
    int id;
    int objClass;
    string speConProcedures;
    string description;
    string* addendums;
    int numAddendums;
};

```

The paranormal object SCP-038 has the ability to clone other objects, such as SCP-500 (panacea). The clone is independent of the original, and the clone will remain the same whether the original is destroyed or modified.

Implement the function with the following prototype:

```
SCP* cloneSCP(SCP* original);
```

The function returns a pointer of the new cloned instance of the original object `original`. Choose the appropriate copy method.

Note: Libraries `iostream` and `string` have been imported, and namespace `std` has been used.

For example:

Test	Result
<pre>string* addendums = new string[2]; addendums[0] = "Document #055-1: An Analysis of SCP-055\nThe author puts forward the hypothesis that SCP-055 was never formally acquired."; addendums[1] = "Document #055-2: Report of Dr. John Marachek\nSurvey team #19-055-127BXE was successfully able to enter SCP-055's container and ascertain the appearance."; SCP* obj = new SCP {55, 2, "Object is kept within a five (5) by five (5) by two point five (2.5) meter square room.", "All known information about the object is that it is not round.", addendums, 2}; SCP* newObj = cloneSCP(obj); obj->id = 1; cout << obj->id << " " << newObj->id << "\n"; delete [] obj->addendums; delete obj; delete [] newObj->addendums; delete newObj;</pre>	1 55
<pre>string* addendums = new string[2]; addendums[0] = "Document #055-1: An Analysis of SCP-055\nThe author puts forward the hypothesis that SCP-055 was never formally acquired."; addendums[1] = "Document #055-2: Report of Dr. John Marachek\nSurvey team #19-055-127BXE was successfully able to enter SCP-055's container and ascertain the appearance."; SCP* obj = new SCP {55, 2, "Object is kept within a five (5) by five (5) by two point five (2.5) meter square room.", "All known information about the object is that it is not round.", addendums, 2}; SCP* newObj = cloneSCP(obj); obj->description = "The object cannot be described."; cout << obj->description << " " << newObj->description << "\n"; delete [] obj->addendums; delete obj; delete [] newObj->addendums; delete newObj;</pre>	The object cannot be described. All known information about the object is that it is not round.

<pre> string* addendums = new string[2]; addendums[0] = "Document #055-1: An Analysis of SCP-055\nThe author puts forward the hypothesis that SCP-055 was never formally acquired."; addendums[1] = "Document #055-2: Report of Dr. John Marachek\nSurvey team #19-055-127BXE was successfully able to enter SCP-055's container and ascertain the appearance."; SCP* obj = new SCP {55, 2, "Object is kept within a five (5) by five (5) by two point five (2.5) meter square room.", "All known information about the object is that it is not round.", addendums, 2}; SCP* newObj = cloneSCP(obj); obj->addendums[0] = "Access authority required."; cout << obj->addendums[0] << " " << newObj->addendums[0] << "\n"; delete [] obj->addendums; delete obj; delete [] newObj->addendums; delete newObj; </pre>	<p>Access authority required.</p> <p>Document #055-1: An Analysis of SCP-055</p> <p>The author puts forward the hypothesis that SCP-055 was never formally acquired.</p>
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Answer: (penalty regime: 0 %)

Reset answer

```
1 SCP* cloneSCP(SCP* original) {
2     // Cấp phát bộ nhớ cho bản sao
3     SCP* copy = new SCP;
4
5     // Copy các thành phần cơ bản
6     copy->id = original->id;
7     copy->objClass = original->objClass;
8     copy->speConProcedures = original->speConProcedures;
9     copy->description = original->description;
10    copy->numAddendums = original->numAddendums;
11
12    // Deep copy cho mảng addendums
13    if (original->numAddendums > 0 && original->addendums != nullptr) {
14        copy->addendums = new string[original->numAddendums];
15        for (int i = 0; i < original->numAddendums; i++) {
16            copy->addendums[i] = original->addendums[i];
17        }
18    } else {
19        copy->addendums = nullptr;
20    }
21
22    return copy;
23 }
24
```

Passed all tests! ✓

