Q1 Convert the following tables into a SINGLE xml document.

Dept

DID	Name	Rooms	Staff
CS235	Computer Science	4	32
EE415	Electrical Engineering	6	45

Faculty

FID	Name	Salary
101	Nicole	$1000
102	Vincent	$2000
103	Florence	$1500

Dept-Faculty

FID	DID
101	CS235
102	CS235
103	EE415

Solution
```
<MCS>
	<Dept>
		<DID>CS235</DID>
		<Name>Computer Science</Name>
		<Rooms>4</Rooms>
		<Staff>32</Staff>
		<faculty>
			<FID>101</FID>
			<Name>Nicole</Name>
			<Salary>1000</Salary>
		</faculty>
		<faculty>
			<FID>102</FID>
			<Name>Vincent</Name>
			<Salary>2000</Salary>
		</faculty>

	</Dept>
	<Dept>
		<DID>EE415</DID>
		<Name>Electrical Engineering</Name>
		<Rooms>6</Rooms>
		<Staff>45</Staff>
		<faculty>
			<FID>103</FID>
			<Name>Florence</Name>
			<Salary>1500</Salary>
		</faculty>

	</Dept>
</MCS>
```

```
<mcs>
<course>
            <ID>BESE15</ID>
            <Student>
                        <name>...</name>
                        <email>...</email>
            </Student>
            <Student>
                        <name>...</name>
            </Student>
</course>
<course>
            <ID>BESE14</ID>
            <Student>
                        <name>...</name>
                        <email>...</email>
            </Student>
</course>
</mcs>
```

Solution

```
<!DOCTYPE MCS[
<! Element MCS(Course)+>
<!Element Course(Id, (Student)+)>
<!Element Student(Name, (Email)*)>
<!Element ID(#PCDATA)>
<!Element Name(#PCDATA)>
<!Element Email(#PCDATA)>
]>
```

```
<!ELEMENT Customer ( (name, (phone)+)>
<!ELEMENT name (#PCDATA)>
<!ELEMENT phone (#PCDATA)>
```

```
<db>                                    a
<customer>
            <name>...</name>
            <phone>...</phone>
            <phone>...</phone>
</customer>
</db>
```

```
<db>
<customer>
            <phone>...</phone>
</customer>
</db>
                                        b
```

```
<db>
<customer>
            <name>...</name>
</customer>
</db>
```

Solution

A is valid.
B is invalid as <name> is missing.
C is invalid as <phone> is missing.