Answer1:

Data in Question	**T-SQL Data Type**	**Why?**
A list of street addresses for businesses	NVARCHAR/NCHAR	Unicode NVARCHAR is chosen because address could have characters from other languages or region. Some addresses are longer than others. Therefore, both NVARCHAR and NCHAR could be used as datatype. For NCHAR, character limit can be set high.
A picture from Twitter	IMAGE	Image data type is chosen as data in question is a picture of not too big size.
A list of car license plate numbers	NCHAR	Number of Characters in a license plates are fairly limited.

A list of holidays	DATE	Date need to displayed, therefore DATE data type is chosen.
A list of prices for movie rentals	SMALLMONEY	Value will be in dollar and it is expected to be couple of hundred bucks at max.
The answer to the question "Did you eat lunch today?"	CHAR/NCHAR	Answer to this question has following possibilities: 'Yes' or 'YES' or 'Y' or 'No' or 'NO' or 'N'. Therefore, the answer could have at most 3 characters.

Answer 2

What is the precision and scale of the following numbers:

a) 22573.41 → **Precision**: 7 **Scale**: 2

b) 527 → **Precision**: 3 **Scale**: 0

What is the length of the following strings (between the quotation marks):

a) "I'll_Be_Back!" → 13

b) "Friends don't let friends drink and drive" → 41

Answer 3:

a) What are the various candidate keys for this table?

Unique Candidate Key(s):

1. hockeyID
2. jerseyNumber
3. mainTeam + fullName + birthDate.

b) Are each of these keys' natural keys or surrogate keys?

   a. **Surrogate Key**: hockeyID

   b. **Natural Key:** jerseyNumber

c) What would make the best choice for the primary key and why?

In our opinion, it will be ideal to go with **hockeyID** as **primary key** of the table in question. It is a surrogate key as well. As it is a surrogate key, uniqueness of record is guaranteed.

We can also go with **jerseyNumber** but uniqueness of jersey number is not guaranteed. Player can decide to change their jersey number and let the administrators know. With the uncertainty that player is going to stick with their Jersey Number, there is no point in going ahead with jerseyNumber as primary key.

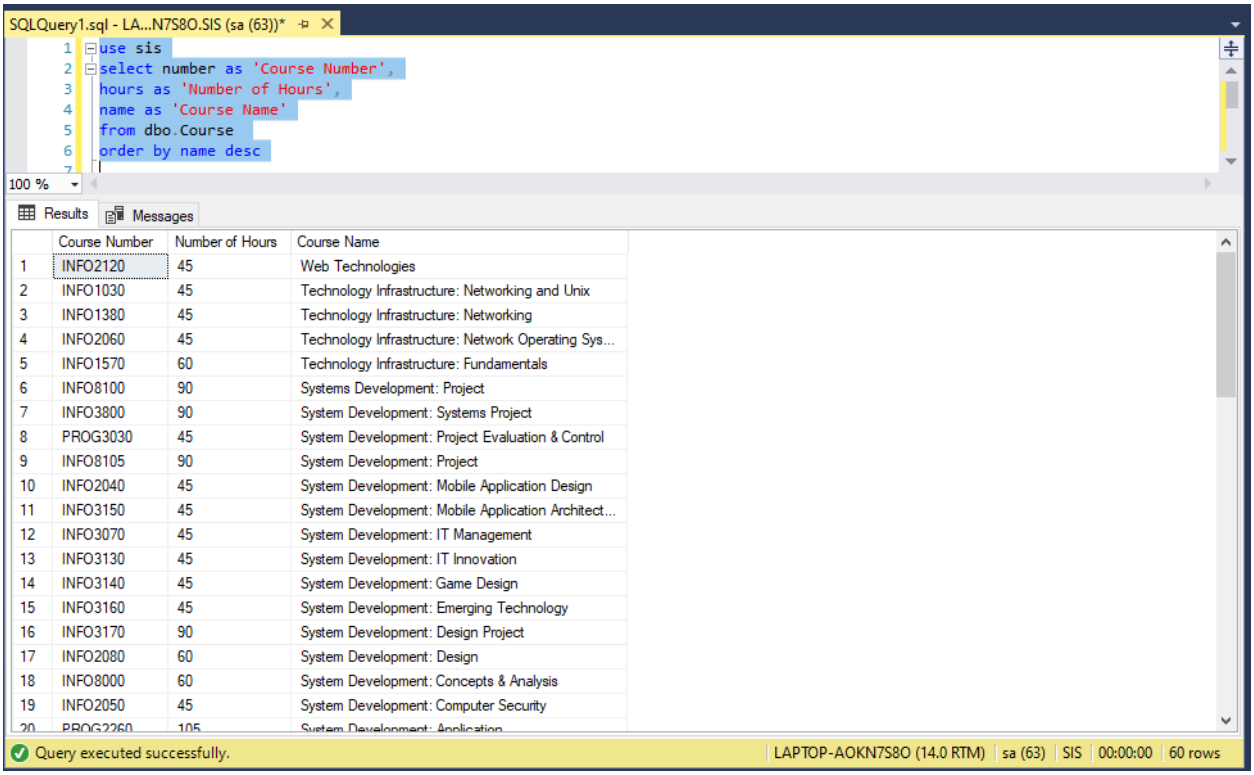
Question 4:

4	Using the SIS database, write a query to retrieve the following from the Course table: - Course Number - Number of Hours - Course Name (English) Sort the results in descending order by course name and provide both a screenshot of the query you used and a screenshot of the resulting data.

Solution

Query:

Select
number as 'Course Number',
hours as 'Number of Hours',
name as 'Course Name'
from dbo.Course
order by name desc



	Course Number	Number of Hours	Course Name
1	INFO2120	45	Web Technologies
2	INFO1030	45	Technology Infrastructure: Networking and Unix
3	INFO1380	45	Technology Infrastructure: Networking
4	INFO2060	45	Technology Infrastructure: Network Operating Sys...
5	INFO1570	60	Technology Infrastructure: Fundamentals
6	INFO8100	90	Systems Development: Project
7	INFO3800	90	System Development: Systems Project
8	PROG3030	45	System Development: Project Evaluation & Control
9	INFO8105	90	System Development: Project
10	INFO2040	45	System Development: Mobile Application Design
11	INFO3150	45	System Development: Mobile Application Architect...
12	INFO3070	45	System Development: IT Management
13	INFO3130	45	System Development: IT Innovation
14	INFO3140	45	System Development: Game Design
15	INFO3160	45	System Development: Emerging Technology
16	INFO3170	90	System Development: Design Project
17	INFO2080	60	System Development: Design
18	INFO8000	60	System Development: Concepts & Analysis
19	INFO2050	45	System Development: Computer Security
20	PROG2260	105	System Development: Application

Question 5

5	Using the SIS database, write a query to retrieve just the unique country codes from the Person table. Sort the results in ascending order and provide screenshots of the query you used as well as one of the resulting data.

Solution

Query:

Select
DISTINCT countryCode
from dbo.Person
order by countryCode

```
9
10  use SIS
11  select distinct countryCode
12  from dbo.Person
13  order by countryCode
```

100 %

Results | Messages

	countryCode
1	CAN
2	CHN
3	IND
4	NGA
5	POL
6	USA

Question 6

6	Using the SIS database, write a query to retrieve the following from the IncidentalFees table: - Item (English column) - Amount/Semester - Total amount if you paid the amount for 3 semesters in a row Include an alias on the item column (name it "incidentalFeeItem" and the calculated "totalAmount" column. Sort the results in ascending order by item

Solution

Query:

SELECT
item as 'IncedentalFeeItem',
amountPerSemester,
*amountPerSemester*3 as 'totalAmount'*
from dbo.IncidentalFee
order by item

```
select
item as 'IncidentalFeeItem',
amountPerSemester ,
amountPerSemester *3 as 'totalAmount'
from dbo.IncidentalFee
order by item
```

Results | Messages

IncidentalFeeItem	amountPerSemester	totalAmount
Administration Fee	20.60	61.80
CSA Fee	4.50	13.50
CSI Association Fee - Doon Campus	77.50	232.50
CSI Capital Development Fee - Doon Campus	52.77	158.31
CSI Health Plan	185.68	557.04
Graduation/Alumni Services Fee	18.56	55.68
Recreation/Athletics Fee	63.17	189.51
Student Priority Fee	45.46	136.38
Technology Enhancement Fee	117.05	351.15

Query executed successfully. | LAPTOP-AOKN7S8O (14.0 RTM) | sa (52) | SIS | 00:00:00 | 9 rows