۱. در نهایت فایل زیر را با اکسپورت SQL از سرور گرفتم:

```
[USE [DB_Lab1
GO
/****** Script Date: 3/14/2021 5:17:55 PM      Object:  Table [dbo].[class] ******/
SET ANSI_NULLS ON
GO
SET QUOTED_IDENTIFIER ON
GO
)[CREATE TABLE [dbo].[class
,course] [nchar](10) NOT NULL]
,section_number] [int] NOT NULL]
,num_registered] [nchar](10) NOT NULL]
class_date_time] [datetime2](7) NOT NULL]
[ON [PRIMARY (
GO
/****** Script Date: 3/14/2021 5:17:55 PM    Object:  Table [dbo].[course] ******/
SET ANSI_NULLS ON
GO
SET QUOTED_IDENTIFIER ON
GO
)[CREATE TABLE [dbo].[course
,name] [nchar](10) NOT NULL]
,number] [int] NOT NULL]
,instructor] [int] NULL]
CONSTRAINT [PK_course_1] PRIMARY KEY CLUSTERED
(
name] ASC]
WITH (PAD_INDEX = OFF, STATISTICS_NORECOMPUTE = OFF, IGNORE_DUP_KEY =(
[OFF, ALLOW_ROW_LOCKS = ON, ALLOW_PAGE_LOCKS = ON) ON [PRIMARY
[ON [PRIMARY (
GO
/****** Script Date: 3/14/2021 5:17:55 PM          Object:  Table [dbo].[instructor] ******/
SET ANSI_NULLS ON
GO
SET QUOTED_IDENTIFIER ON
GO
)[CREATE TABLE [dbo].[instructor
,number] [int] NOT NULL]
,name] [nchar](10) NULL]
,faculty] [nchar](10) NULL]
CONSTRAINT [PK_instructor] PRIMARY KEY CLUSTERED
(
number] ASC]
```

```
WITH (PAD_INDEX = OFF, STATISTICS_NORECOMPUTE = OFF, IGNORE_DUP_KEY =(
[OFF, ALLOW_ROW_LOCKS = ON, ALLOW_PAGE_LOCKS = ON) ON [PRIMARY
[ON [PRIMARY (
GO
/****** Script Date: 3/14/2021 5:17:55 PM          Object:  Table [dbo].[professor] ******/
SET ANSI_NULLS ON
GO
SET QUOTED_IDENTIFIER ON
GO
)[CREATE TABLE [dbo].[professor
,id] [int] NOT NULL]
,name] [nchar](10) NOT NULL]
,faculty] [nchar](10) NOT NULL]
CONSTRAINT [PK_professor] PRIMARY KEY CLUSTERED
)
id] ASC]
WITH (PAD_INDEX = OFF, STATISTICS_NORECOMPUTE = OFF, IGNORE_DUP_KEY =(
[OFF, ALLOW_ROW_LOCKS = ON, ALLOW_PAGE_LOCKS = ON) ON [PRIMARY
[ON [PRIMARY (
GO
/****** Script Date: 3/14/2021 5:17:55 PM       Object:  Table [dbo].[seat] ******/
SET ANSI_NULLS ON
GO
SET QUOTED_IDENTIFIER ON
GO
)[CREATE TABLE [dbo].[seat
,number] [int] NOT NULL]
,position] [nvarchar](50) NULL]
CONSTRAINT [PK_seat] PRIMARY KEY CLUSTERED
)
number] ASC]
WITH (PAD_INDEX = OFF, STATISTICS_NORECOMPUTE = OFF, IGNORE_DUP_KEY =(
[OFF, ALLOW_ROW_LOCKS = ON, ALLOW_PAGE_LOCKS = ON) ON [PRIMARY
[ON [PRIMARY (
GO
/****** Script Date: 3/14/2021 5:17:55 PM   Object:  Table [dbo].[section] ******/
SET ANSI_NULLS ON
GO
SET QUOTED_IDENTIFIER ON
GO
)[CREATE TABLE [dbo].[section
,number] [int] NOT NULL]
,professor] [int] NULL]
CONSTRAINT [PK_section] PRIMARY KEY CLUSTERED
```

```
)
number] ASC]
WITH (PAD_INDEX = OFF, STATISTICS_NORECOMPUTE = OFF, IGNORE_DUP_KEY =(
[OFF, ALLOW_ROW_LOCKS = ON, ALLOW_PAGE_LOCKS = ON) ON [PRIMARY
[ON [PRIMARY (
GO
/****** Script Date: 3/14/2021 5:17:55 PM   Object:  Table [dbo].[student] ******/
SET ANSI_NULLS ON
GO
SET QUOTED_IDENTIFIER ON
GO
)[CREATE TABLE [dbo].[student
,id] [int] NOT NULL]
,name] [nvarchar](50) NOT NULL]
,address] [text] NOT NULL]
,course] [int] NULL]
,seat] [int] NOT NULL]
CONSTRAINT [PK_stidemt] PRIMARY KEY CLUSTERED
)
id] ASC]
WITH (PAD_INDEX = OFF, STATISTICS_NORECOMPUTE = OFF, IGNORE_DUP_KEY =(
[OFF, ALLOW_ROW_LOCKS = ON, ALLOW_PAGE_LOCKS = ON) ON [PRIMARY
[ON [PRIMARY] TEXTIMAGE_ON [PRIMARY (
GO
INSERT [dbo].[class] ([course], [section_number], [num_registered], [class_date_time]) VALUES
((', CAST(N'2001-01-01T00:00:00.0000000' AS DateTime2          ', 1, N'50              (N'db
INSERT [dbo].[class] ([course], [section_number], [num_registered], [class_date_time]) VALUES
((', CAST(N'2001-12-12T00:00:00.0000000' AS DateTime2          ', 2, N'40        (N'db_lab
GO
(', 1, 1        INSERT [dbo].[course] ([name], [number], [instructor]) VALUES (N'db
(', 2, 2 INSERT [dbo].[course] ([name], [number], [instructor]) VALUES (N'db_lab
GO
            ', N'db            INSERT [dbo].[instructor] ([number], [name], [faculty]) VALUES (1, N'inst1
('
            ', N'db            INSERT [dbo].[instructor] ([number], [name], [faculty]) VALUES (2, N'inst2
('
GO
('          ', N'reza              INSERT [dbo].[professor] ([id], [name], [faculty]) VALUES (1, N'ali
('     ', N'mamad        INSERT [dbo].[professor] ([id], [name], [faculty]) VALUES (2, N'hasan
GO
('INSERT [dbo].[seat] ([number], [position]) VALUES (1, N'c
('INSERT [dbo].[seat] ([number], [position]) VALUES (2, N'd
GO
(INSERT [dbo].[section] ([number], [professor]) VALUES (1, 1
```

```
(INSERT [dbo].[section] ([number], [professor]) VALUES (2, 2
GO
(INSERT [dbo].[student] ([id], [name], [address], [course], [seat]) VALUES (1, N'a', N'b', 1, 1
(INSERT [dbo].[student] ([id], [name], [address], [course], [seat]) VALUES (2, N'b', N'c', 2, 2
GO
ALTER TABLE [dbo].[class]  WITH CHECK ADD  CONSTRAINT [FK_class_course] FOREIGN
([KEY([course
([REFERENCES [dbo].[course] ([name
GO
[ALTER TABLE [dbo].[class] CHECK CONSTRAINT [FK_class_course
GO
ALTER TABLE [dbo].[class]  WITH CHECK ADD  CONSTRAINT [FK_class_section] FOREIGN
([KEY([section_number
([REFERENCES [dbo].[section] ([number
GO
[ALTER TABLE [dbo].[class] CHECK CONSTRAINT [FK_class_section
GO
ALTER TABLE [dbo].[course]  WITH CHECK ADD  CONSTRAINT [FK_course_instructor]
([FOREIGN KEY([instructor
([REFERENCES [dbo].[instructor] ([number
GO
[ALTER TABLE [dbo].[course] CHECK CONSTRAINT [FK_course_instructor
GO
ALTER TABLE [dbo].[section]  WITH CHECK ADD  CONSTRAINT [FK_section_section]
([FOREIGN KEY([professor
([REFERENCES [dbo].[professor] ([id
GO
[ALTER TABLE [dbo].[section] CHECK CONSTRAINT [FK_section_section
GO
ALTER TABLE [dbo].[student]  WITH CHECK ADD  CONSTRAINT [FK_student_Seat]
([FOREIGN KEY([seat
([REFERENCES [dbo].[seat] ([number
GO
[ALTER TABLE [dbo].[student] CHECK CONSTRAINT [FK_student_Seat
GO
ALTER TABLE [dbo].[student]  WITH CHECK ADD  CONSTRAINT [FK_student_student]
([FOREIGN KEY([id
([REFERENCES [dbo].[student] ([id
GO
[ALTER TABLE [dbo].[student] CHECK CONSTRAINT [FK_student_student
GO
```

۲. دیتابیس SQL Server از دو نوع فایل استفاده می‌کند. یکی MDF که مخفف Measurement Data Format است و به آن Primary Database File می‌گویند که شامل شمای دیتابیس و داده‌های آن می‌شود، و دیگری فایل LDF که شامل Log های دیتابیس است. بعضا از فایل‌های ndf یا non-primary نیز برای ذخیره‌ی داده‌های مربوط به دیتابیس نیز استفاده می‌شود. (مثلا فایل‌های اشتراکی بین چند دیتابیس)
سیستم SQL Server داده‌های متفاوتی (مثل primitive ها: integer, float, char, decimal, etc یا blobها برای فایل‌های باینری) را ذخیره می‌کند و سیستم رند کردن آن نیز به صورت رند به بالا یا رند به پایین به عدد صحیح انجام می‌شود. همچنین اجازه‌ی ذخیره‌ی User-defined composite types را می‌دهد و ماکسیمم ۲ به توان ۳۱ آبجکت در آن جا می‌شوند که در مجموع نباید بیش‌تر از ۲ به توان ۶۰ بایت (۱ اگزابایت باشند) و هارد دیسک allocate شده به دیتابیس به صفحات یا پیج‌های ترتیبی که هر کدام ۸ کیلوبایت هستند شکسته می‌شود.

۳. لیست انواع تایپ‌های SQL Server با توضیحات در عکس زیر آورده شده است:

String Data Types

Data type	Description	Max size	Storage
char(n)	Fixed width character string	8,000 characters	Defined width
varchar(n)	Variable width character string	8,000 characters	2 bytes + number of chars
varchar(max)	Variable width character string	1,073,741,824 characters	2 bytes + number of chars
text	Variable width character string	2GB of text data	4 bytes + number of chars
nchar	Fixed width Unicode string	4,000 characters	Defined width x 2
nvarchar	Variable width Unicode string	4,000 characters	
nvarchar(max)	Variable width Unicode string	536,870,912 characters	
ntext	Variable width Unicode string	2GB of text data	
binary(n)	Fixed width binary string	8,000 bytes	
varbinary	Variable width binary string	8,000 bytes	
varbinary(max)	Variable width binary string	2GB	
image	Variable width binary string	2GB	

Numeric Data Types

Data type	Description	Storage
bit	Integer that can be 0, 1, or NULL	
tinyint	Allows whole numbers from 0 to 255	1 byte
smallint	Allows whole numbers between -32,768 and 32,767	2 bytes
int	Allows whole numbers between -2,147,483,648 and 2,147,483,647	4 bytes
bigint	Allows whole numbers between -9,223,372,036,854,775,808 and 9,223,372,036,854,775,807	8 bytes
decimal(p,s)	Fixed precision and scale numbers. Allows numbers from -10^38 +1 to 10^38 –1. The p parameter indicates the maximum total number of digits that can be stored (both to the left and to the right of the decimal point). p must be a value from 1 to 38. Default is 18. The s parameter indicates the maximum number of digits stored to the right of the decimal point. s must be a value from 0 to p. Default value is 0	5-17 bytes
numeric(p,s)	Fixed precision and scale numbers. Allows numbers from -10^38 +1 to 10^38 –1. The p parameter indicates the maximum total number of digits that can be stored (both to the left and to the right of the decimal point). p must be a value from 1 to 38. Default is 18. The s parameter indicates the maximum number of digits stored to the right of the decimal point. s must be a value from 0 to p. Default value is 0	5-17 bytes
smallmoney	Monetary data from -214,748.3648 to 214,748.3647	4 bytes
money	Monetary data from -922,337,203,685,477.5808 to 922,337,203,685,477.5807	8 bytes
float(n)	Floating precision number data from -1.79E + 308 to 1.79E + 308. The n parameter indicates whether the field should hold 4 or 8 bytes. float(24) holds a 4-byte field and float(53) holds an 8-byte field. Default value of n is 53.	4 or 8 bytes
real	Floating precision number data from -3.40E + 38 to 3.40E + 38	4 bytes

Date and Time Data Types

Data type	Description	Storage
datetime	From January 1, 1753 to December 31, 9999 with an accuracy of 3.33 milliseconds	8 bytes
datetime2	From January 1, 0001 to December 31, 9999 with an accuracy of 100 nanoseconds	6-8 bytes
smalldatetime	From January 1, 1900 to June 6, 2079 with an accuracy of 1 minute	4 bytes
date	Store a date only. From January 1, 0001 to December 31, 9999	3 bytes
time	Store a time only to an accuracy of 100 nanoseconds	3-5 bytes
datetimeoffset	The same as datetime2 with the addition of a time zone offset	8-10 bytes
timestamp	Stores a unique number that gets updated every time a row gets created or modified. The timestamp value is based upon an internal clock and does not correspond to real time. Each table may have only one timestamp variable	

Other Data Types

Data type	Description
sql_variant	Stores up to 8,000 bytes of data of various data types, except text, ntext, and timestamp
uniqueidentifier	Stores a globally unique identifier (GUID)
xml	Stores XML formatted data. Maximum 2GB
cursor	Stores a reference to a cursor used for database operations
table	Stores a result-set for later processing