ANKARA ÜNİVERSİTESİ MÜHENDİSLİK FAKÜLTESİ
BİLGİSAYAR MÜHENDİSLİĞİ BÖLÜMÜ

BLM4522 VERİTABANI YÜKSELTME VE SÜRÜM YÖNETİMİ RAPORU

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Video Linki :

https://drive.google.com/file/d/1xKX419ivu4PbjD_1r5knhSs1XE8Wst4f/view?usp=drive_link

PROJE : VERİTABANI YÜKSELTME VE SÜRÜM YÖNETİMİ

AŞAMA 1: Veritabanı Yükseltme Planı

```sql
USE AdventureWorks2019;
GO

SELECT TABLE_SCHEMA, TABLE_NAME
FROM INFORMATION_SCHEMA.TABLES
WHERE TABLE_TYPE = 'BASE TABLE'
ORDER BY TABLE_SCHEMA, TABLE_NAME;
```

	TABLE_SCHEMA	TABLE_NAME
1	dbo	AWBuildVersion
2	dbo	DatabaseLog
3	dbo	ErrorLog
4	HumanResources	Department
5	HumanResources	Employee
6	HumanResources	EmployeeDepartmentHistory
7	HumanResources	EmployeePayHistory
8	HumanResources	JobCandidate
9	HumanResources	Shift
10	Person	Address
11	Person	AddressType
12	Person	BusinessEntity
13	Person	BusinessEntityAddress
14	Person	BusinessEntityContact
15	Person	ContactType
16	Person	CountryRegion
17	Person	EmailAddress
18	Person	Password
19	Person	Person
20	Person	PersonPhone

```sql
SELECT
    TABLE_NAME,
    COLUMN_NAME,
    DATA_TYPE,
    IS_NULLABLE,
    CHARACTER_MAXIMUM_LENGTH
FROM INFORMATION_SCHEMA.COLUMNS
WHERE TABLE_SCHEMA = 'Sales'  -- örnek olarak sadece Sales şemasını seçtik
ORDER BY TABLE_NAME, ORDINAL_POSITION;
```

100 %

Results | Messages

	TABLE_NAME	COLUMN_NAME	DATA_TYPE	IS_NULLABLE	CHARACTER_MAXIMUM_LENGTH
1	CountryRegionCurrency	CountryRegionCode	nvarchar	NO	3
2	CountryRegionCurrency	CurrencyCode	nchar	NO	3
3	CountryRegionCurrency	ModifiedDate	datetime	NO	NULL
4	CreditCard	CreditCardID	int	NO	NULL
5	CreditCard	CardType	nvarchar	NO	50
6	CreditCard	CardNumber	nvarchar	NO	25
7	CreditCard	ExpMonth	tinyint	NO	NULL
8	CreditCard	ExpYear	smallint	NO	NULL
9	CreditCard	ModifiedDate	datetime	NO	NULL
10	Currency	CurrencyCode	nchar	NO	3
11	Currency	Name	nvarchar	NO	50
12	Currency	ModifiedDate	datetime	NO	NULL
13	CurrencyRate	CurrencyRateID	int	NO	NULL
14	CurrencyRate	CurrencyRateDate	datetime	NO	NULL
15	CurrencyRate	FromCurrencyCode	nchar	NO	3
16	CurrencyRate	ToCurrencyCode	nchar	NO	3
17	CurrencyRate	AverageRate	money	NO	NULL
18	CurrencyRate	EndOfDayRate	money	NO	NULL
19	CurrencyRate	ModifiedDate	datetime	NO	NULL
20	Customer	CustomerID	int	NO	NULL

```sql
SELECT
    fk.name AS FK_Name,
    OBJECT_NAME(fk.parent_object_id) AS Table_Name,
    c1.name AS Column_Name,
    OBJECT_NAME(fk.referenced_object_id) AS Referenced_Table,
    c2.name AS Referenced_Column
FROM sys.foreign_keys AS fk
INNER JOIN sys.foreign_key_columns AS fkc ON fk.object_id = fkc.constraint_object_id
INNER JOIN sys.columns AS c1 ON fkc.parent_object_id = c1.object_id AND fkc.parent_column_id = c1.column_id
INNER JOIN sys.columns AS c2 ON fkc.referenced_object_id = c2.object_id AND fkc.referenced_column_id = c2.column_id;
```

100 %

Results | Messages

	FK_Name	Table_Name	Column_Name	Referenced_Table	Referenced_Column
1	FK_Customer_SalesTerritory_TerritoryID	Customer	TerritoryID	SalesTerritory	TerritoryID
2	FK_SalesOrderHeader_SalesTerritory_TerritoryID	SalesOrderHeader	TerritoryID	SalesTerritory	TerritoryID
3	FK_SalesPerson_SalesTerritory_TerritoryID	SalesPerson	TerritoryID	SalesTerritory	TerritoryID
4	FK_SalesTerritoryHistory_SalesTerritory_TerritoryID	SalesTerritoryHistory	TerritoryID	SalesTerritory	TerritoryID
5	FK_StateProvince_SalesTerritory_TerritoryID	StateProvince	TerritoryID	SalesTerritory	TerritoryID
6	FK_PersonPhone_PhoneNumberType_PhoneNumberTypeID	PersonPhone	PhoneNumberTypeID	PhoneNumberType	PhoneNumberTypeID
7	FK_BillOfMaterials_Product_ProductAssemblyID	BillOfMaterials	ProductAssemblyID	Product	ProductID
8	FK_BillOfMaterials_Product_ComponentID	BillOfMaterials	ComponentID	Product	ProductID
9	FK_ProductCostHistory_Product_ProductID	ProductCostHistory	ProductID	Product	ProductID
10	FK_ProductDocument_Product_ProductID	ProductDocument	ProductID	Product	ProductID
11	FK_ProductInventory_Product_ProductID	ProductInventory	ProductID	Product	ProductID
12	FK_ProductListPriceHistory_Product_ProductID	ProductListPriceHistory	ProductID	Product	ProductID
13	FK_ProductProductPhoto_Product_ProductID	ProductProductPhoto	ProductID	Product	ProductID
14	FK_ProductReview_Product_ProductID	ProductReview	ProductID	Product	ProductID
15	FK_ProductVendor_Product_ProductID	ProductVendor	ProductID	Product	ProductID
16	FK_PurchaseOrderDetail_Product_ProductID	PurchaseOrderDetail	ProductID	Product	ProductID
17	FK_ShoppingCartItem_Product_ProductID	ShoppingCartItem	ProductID	Product	ProductID
18	FK_SpecialOfferProduct_Product_ProductID	SpecialOfferProduct	ProductID	Product	ProductID
19	FK_TransactionHistory_Product_ProductID	TransactionHistory	ProductID	Product	ProductID
20	FK_WorkOrder_Product_ProductID	WorkOrder	ProductID	Product	ProductID

AdventureWorks2019 veritabanında bulunan tablolar ve şemalar
INFORMATION_SCHEMA sorguları kullanılarak detaylı şekilde analiz edilmiştir.

Bu sayede hangi şemalarda hangi tabloların bulunduğu ve tabloların detaylı kolon yapısı çıkarılmıştır.

AŞAMA 2: Sürüm Yönetimi

```sql
CREATE TABLE dbo.SchemaVersion (
    VersionID INT IDENTITY PRIMARY KEY,
    ScriptName NVARCHAR(200),
    AppliedAt DATETIME DEFAULT GETDATE()
);
```

100 % ▾ ◀

📄 Messages

Commands completed successfully.

Completion time: 2025-05-29T05:53:55.3939790+03:00

```sql
INSERT INTO dbo.SchemaVersion (ScriptName)
VALUES ('V1__add_email_to_customer.sql');
```

100 % ▾ ◀

📄 Messages

(1 row affected)

Completion time: 2025-05-29T05:54:16.9490326+03:00

```
CREATE TRIGGER tr_LogDDLChanges
ON DATABASE
FOR DDL_DATABASE_LEVEL_EVENTS
AS
BEGIN
    INSERT INTO dbo.DDL_Changes_Log (EventData, EventTime)
    VALUES (EVENTDATA(), GETDATE());
END;
```

100 %

Messages

Commands completed successfully.

Completion time: 2025-05-29T05:58:15.5366510+03:00

Bu sistemle her bir yapısal değişiklik kendi sürüm etiketi ile kayda alınmıştır.

AŞAMA 3: Test ve Geri Dönüş Planı

```
SELECT TOP 1 Email FROM Sales.Customer;
```

100 %

Results   Messages

	Email
1	NULL

```
SELECT * FROM Sales.vw_TopCustomers;
```

100 % ▾ ◄

⊞ Results ▤ Messages

	CustomerID	TotalOrders
1	11091	28
2	11176	28
3	11185	27
4	11200	27
5	11223	27
6	11262	27
7	11276	27
8	11277	27
9	11287	27
10	11300	27

ALTER TABLE komutu ile eklenen Email alanının başarıyla oluşturulup oluşturulmadığı SELECT TOP 1 Email FROM Sales.Customer sorgusu ile test edilmiştir.

Oluşturulan Sales.CustomerFeedback tablosunun yapısı ve erişilebilirliği SELECT * FROM Sales.CustomerFeedback komutu ile doğrulanmıştır.

vw_TopCustomers isminde oluşturulan yeni view, beklenen sonuçları üretip üretmediğini kontrol etmek için SELECT * FROM Sales.vw_TopCustomers komutu ile test edilmiştir.