⊙ Indexing:

```
CREATE { CLUSTERED    INDEX name ON tablename(
       { NONCLUSTERED
          colname1 { ASC
                   { DEC
          colname2 { ASC
                   { DEC
)
```

CLUSTERED ↗ permanent, one per table

NONCLUSTERED ← many, present on secondary tables (with refs)

Base useful indexes:

- primary key
- foreign keys

⊙ Views vs Temp. Tables:

```
CREATE VIEW name AS          |   SELECT...
    SELECT...                |   INTO #newTableName
    ⋮                        |   ⋮
```

changes to match data alterations | hard copy that doesn't change.

⊙ Procedures:

```
CREATE PROCEDURE name
    @inputA int,
    @anotherOne varchar(50),
    ⋮
    AS
    BEGIN
    ⋮  <- what the procedure does
    END
```

To run it:

```
EXEC name 10, "hi", ...
```

⊙ Transactions:

```
BEGIN TRANSACTION
    ⋮ <- updating, inserting, etc...
    ⋮
COMMIT        ROLLBACK
```

COMMIT ↑ save changes

ROLLBACK ↑ undo

⊙ Triggers:

```
CREATE TRIGGER tname ON tableOrViewName
{FOR/AFTER/INSTEAD OF} {DELETE/INSERT/UPDATE}
AS
⋮
```

⊙ Cursors:

```
DECLARE @thing type
DECLARE @thing2 type2
DECLARE cname CURSOR
FOR SELECT....
```

```
OPEN cname
  FETCH NEXT FROM cname INTO @thing1, ..., @thing
  WHILE @@FETCHSTATUS=0
      BEGIN
      ⋮ <- usually call procs using the @s.
      FETCH NEXT FROM cname INTO @ ...
      END
CLOSE cname
```

(don't forget to DEALLOCATE it).

⊙ Security:

CREATE LOGIN name WITH PASSWORD = 'eyy';
CREATE USER namename FOR LOGIN name;

create user:

Security -> Logins $\xrightarrow{\text{right click}}$ new Login -> name + pass + "user must change pass at next login" = true.

Roles:

- GRANT {SELECT/UPDATE/INSERT/DELETE/all privledges} (col)

  optional to specify a single collumn

  ON table
  TO user with grant option ← optional

- CREATE ROLE r

  Now we can grant stuff to "r" and grant "r" to users

- REVOKE... ← to undo grants

⊙ REMINDER:

- PRINT @thing1 + 'hello' + @thing2

⊙ Backup & Restore:

```
BACKUP DATABASE Name
TO DISK 'C:\path...... .dat'

RESTORE DATABASE newName
FROM DISK 'C\path...... .dat'
WITH MOVE 'Name -dat' TO 'C\newpath....\ newName.mdf',
     MOVE 'Name -log' TO 'C\newpath...\newName .ldf'
```