# Name of Your Company:

The name of the company is Child Care Limited (i.e., Babysitting Company)

# Project Title:

Database for a company that provides babysitting services to families.

# Team:

* + Emilia Hoang (MS SQL Server Expert)

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# Weekly Meeting Hours:

We will meet and work on the project every Wednesday from 3:30 pm to 5:30 pm.

# Project Description:

* + The database store data about babysitters, families, and details of contracts between them.
  + Data about babysitters - managers: name, date of birth, highest education degree, skills (painting, singing, playing guitar, standup comedy…), availability time (days of week, from-to time, …), gender, occupation (babysitting can be the second job of the person), SSN, nationality, languages that the person can speak….
  + Data about parents: full name of the family representative, address, phones, emails, marital status (married, divorced,

single parent…)

* + Data about the child that needs babysitting: name, date of birth, age, gender, disability (if the child has any), languages

spoken…

* + Data about contract: start and end date, the schedule of babysitting (time and activity done during that time), services

expected from babysitter…

# Assumptions about Cardinality and Participations:

1. Babysitters sign contract: **SIGN** relationship (between BABYSITTER, CONTRACT) Many-to-many (1:N) Total participation (All babysitters sign at least 1 contract; all contracts are signed by at least 1 babysitter).
2. Children are part of contract: **BE\_PART\_OF** relationship (between CHILDREN, CONTRACT by weak entity we find who the parent is) One-to-many (1:N)

Partial participation (Not all contracts are signed; all children sign at least 1 contract)

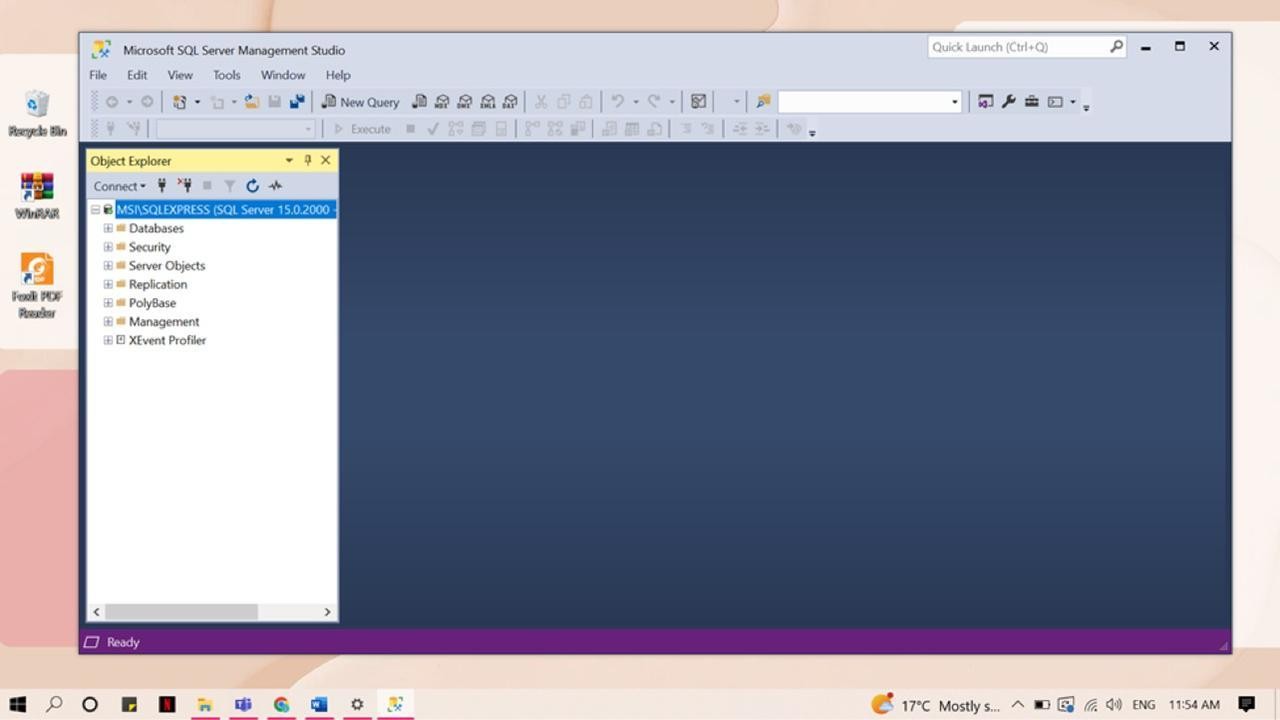
1. Manager manages babysitter: **MANAGEMENT** recursive relationship (between Manager, Babysitter) One-to-many (1:N).
2. Parents have children: **HAVE** relationship (between PARENT, CHILDREN) One-to-many (1:N)

Total participation (All parents have at least 1 child; all children have at least 1 parent).

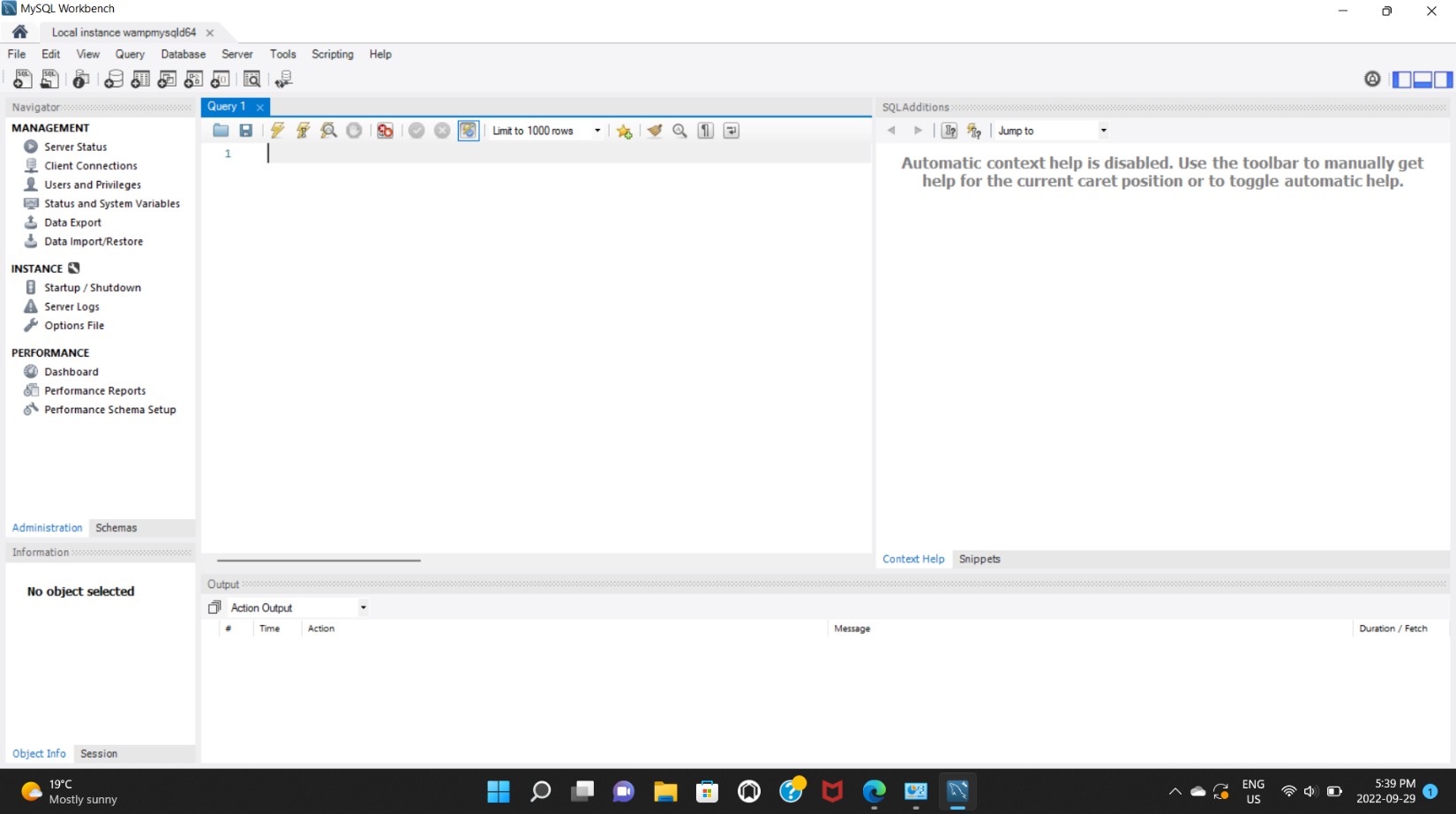
SCREENSHOTS:

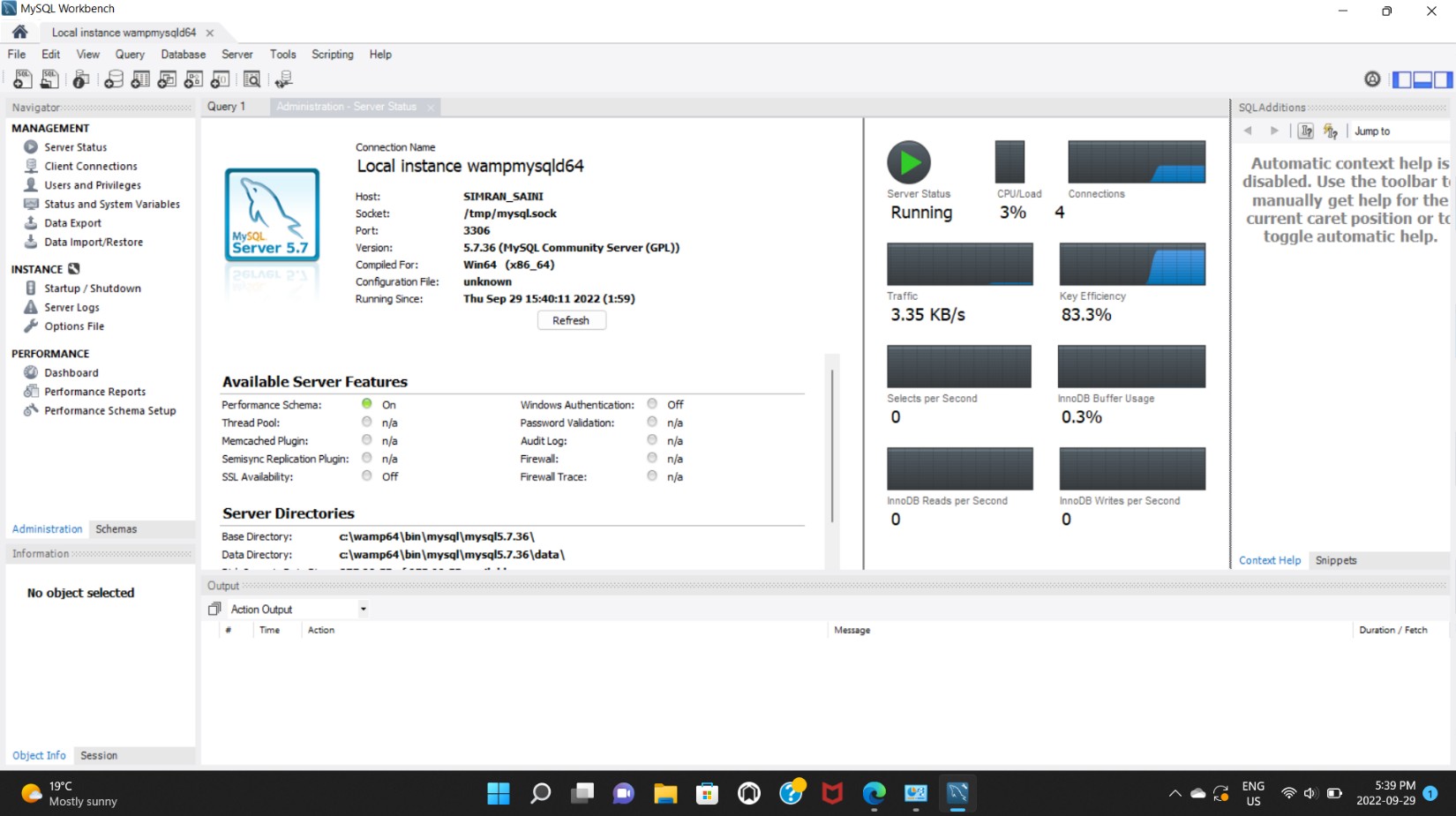
MS SQL:



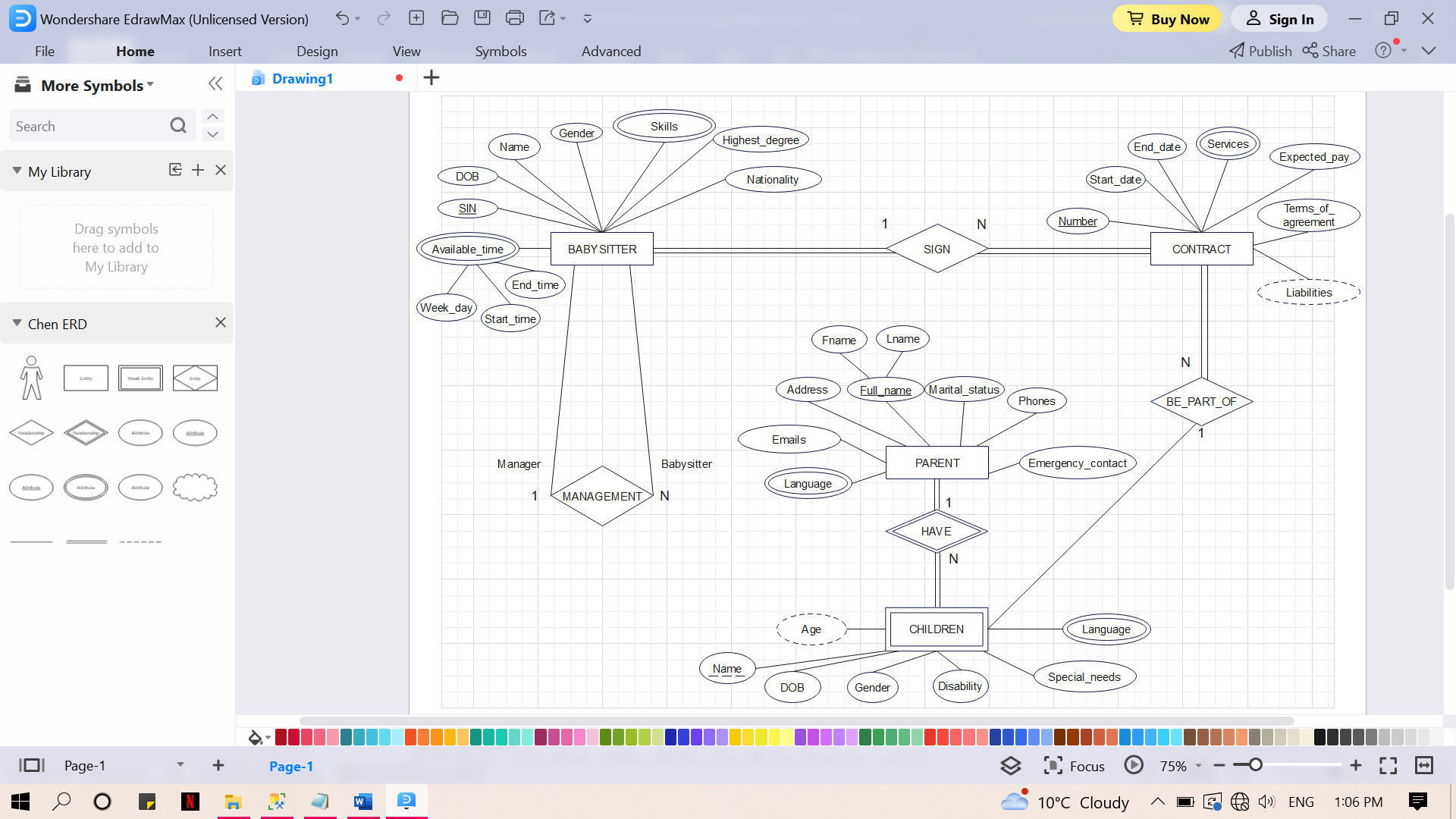


MySQL:





# EER Modeling Diagram



# ER-Model Mapping to Database Relational Schema

1. Map strong entity:

Parent (Fname, Lname, Emails, Address, Marital\_status, Phones, Emergency\_contact)

Contract (Number, Start\_date, End\_date, Expected\_pay, Terms\_of\_aggreement)

Babysitter (SIN, DOB, Name, Gender, Highest\_degree, Nationality)

1. Map weak entity:

Children ((**Fname, Lname),** Child\_name, DOB, Gender, Disability, Special\_needs)

1. Map relationship:

HAVE relationship: do not need to map identifying relationship

BE\_PART\_OF relationship: using relational relation

Children\_BePartOf\_Contract (**Contract\_Number**, **(Fname, Lname), Child\_name)**

SIGN relationship: put the key of Babysitters to become foreign key of Contract

Contract (Number, Name\_of\_child, Start\_date, End\_date, Expected\_pay, Terms\_of\_aggreement, **Babysitter**\_**SIN**)

MANAGEMENT relationship: recursive, partial -> use relationship relation

Manager\_Babysitter (**Manager\_SIN, Babysitter\_SIN**)

1. Map multivalued attributes:

Parent\_Language ((**Fname, Lname**), Language)

Contract\_Service (**Contract\_number**, Services)

Children\_Language (**Fname, Lname), Child\_name**, Language)

Babysitter\_AvailableTime (**SIN**, Start\_time, End\_time, Week\_day)

Babysitter\_Skills (**SIN**, Skills)

1. Combined all relations:

Parent (Fname, Lname, Emails, Address, Marital\_status, Phones, Emergency\_contact)

Contract (Number, Start\_date, End\_date, Expected\_pay, Terms\_of\_aggreement, **Babysitter**\_**SIN**)

Babysitter (SIN, DOB, Name, Gender, Highest\_degree, Nationality)

Children ((**Fname, Lname),** Child\_name, DOB, Gender, Disability, Special\_needs)

Children\_BePartOf\_Contract (**Contract\_Number**, **(Fname, Lname), Child\_name)**

Manager\_Babysitter (**Manager\_SIN, Babysitter\_SIN**)

Parent\_Language ((**Fname, Lname**), Language)

Contract\_Service (**Contract\_number**, Services)

Children\_Language (**Fname, Lname, Child\_name**, Language)

Babysitter\_AvailableTime (**SIN**, Start\_time, End\_time, Week\_day)

Babysitter\_Skills (**SIN**, Skills)

# Normalization

1NF: There is no multivalued attributes in the schema

2NF: Every non-prime attribute in schema is fully functionally dependent on the primary key

3NF: There is no transitive FD in the schema

The model is completely in the 3NF normalization.