



**Bilkent University**  
Department of Computer Engineering

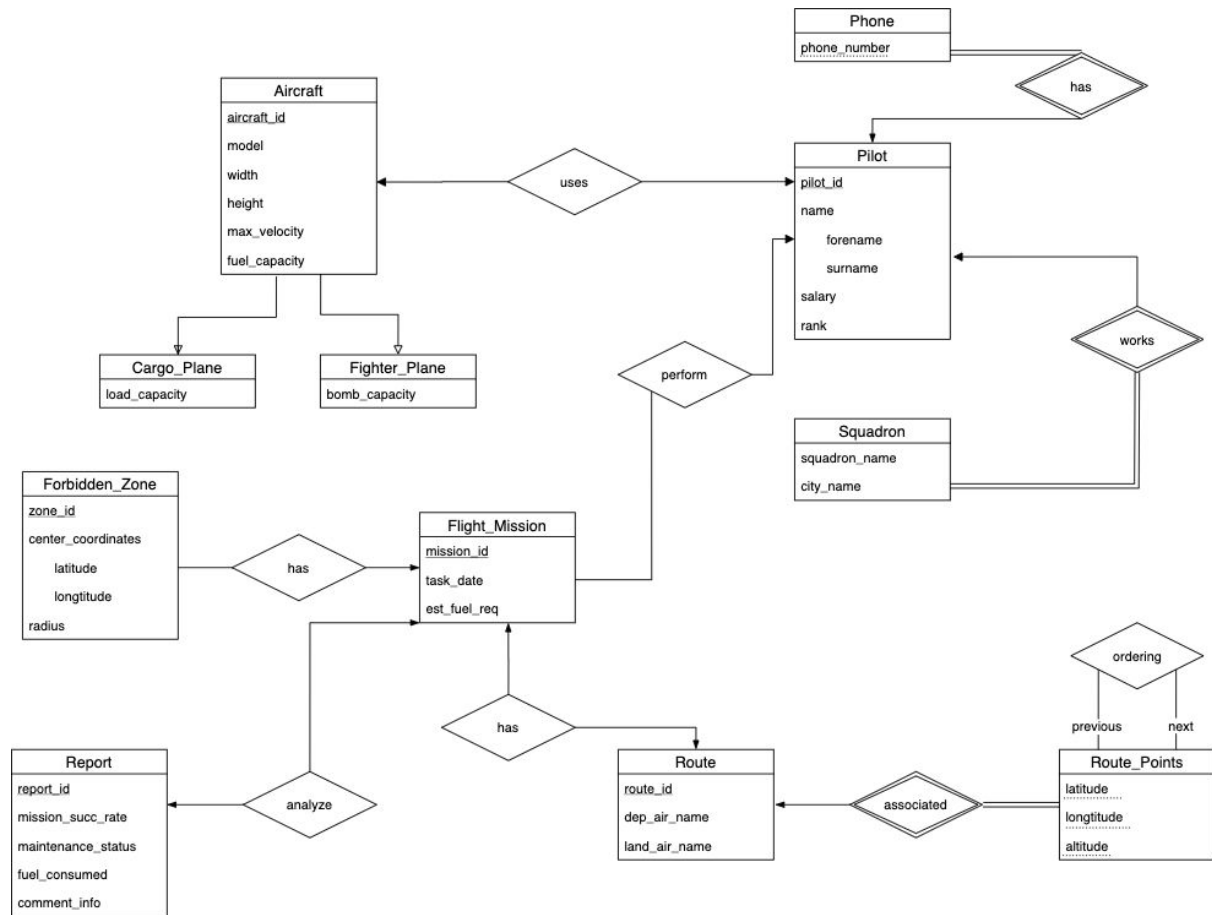
**CS - 353 Database Systems**

**Homework 1**

*Designing a database through an E/R diagram  
and Relational Model*

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## Question 1)



## Question 2)

*Aircraft* (aircraft\_id, model, width, height, max\_velocity, fuel\_velocity)

*Cargo\_Plane* (aircraft\_id, load\_capacity)

FK: aircraft\_id references Aircraft

*Fighter\_Plane* (aircraft\_id, bomb\_capacity)

FK: aircraft\_id references Aircraft

*Pilot* (pilot\_id, forename, surname, salary, rank)

*Phone* (pilot\_id, phone\_number)

FK: pilot\_id references Pilot

*Squadron* (pilot\_id, squadron\_name, city\_name)

FK: pilot\_id references Pilot

*Flight\_Mission* (mission\_id, task\_date, est\_fuel\_req)

*Pilot\_Aircraft* (pilot\_id, aircraft\_id)

FK: pilot\_id references Pilot

FK: aircraft\_id references Aircraft

*Mission\_Pilot* (mission\_id, pilot\_id)

FK: mission\_id references Flight\_Mission

FK: pilot\_id references Pilot

*Route* (route\_id, dep\_air\_name, land\_air\_name)

*Mission\_Route* (mission\_id, route\_id)

FK: mission\_id references Flight\_Mission

FK: route\_id references Route

*Route\_Points* (route\_id, latitude, longitude, altitude)

FK: route\_id references Route

*Ordering* (previous, next)

FK: previous references Route(route\_id)

FK: next references Route(route\_id)

*Forbidden\_Zone* (zone\_id, latitude, longitude, radius)

*Forbidden\_Zone\_for\_Mission* (zone\_id, mission\_id)

FK: zone\_id references Forbidden\_Zone

FK: mission\_id references Flight\_Mission

*Report* (report\_id, mission\_succ\_rate, maintenance\_status, fuel\_consumed, comment\_info)

*Report\_for\_Mission* (report\_id, mission\_id)

FK: report\_id references Report

FK: mission\_id references Flight\_Mission