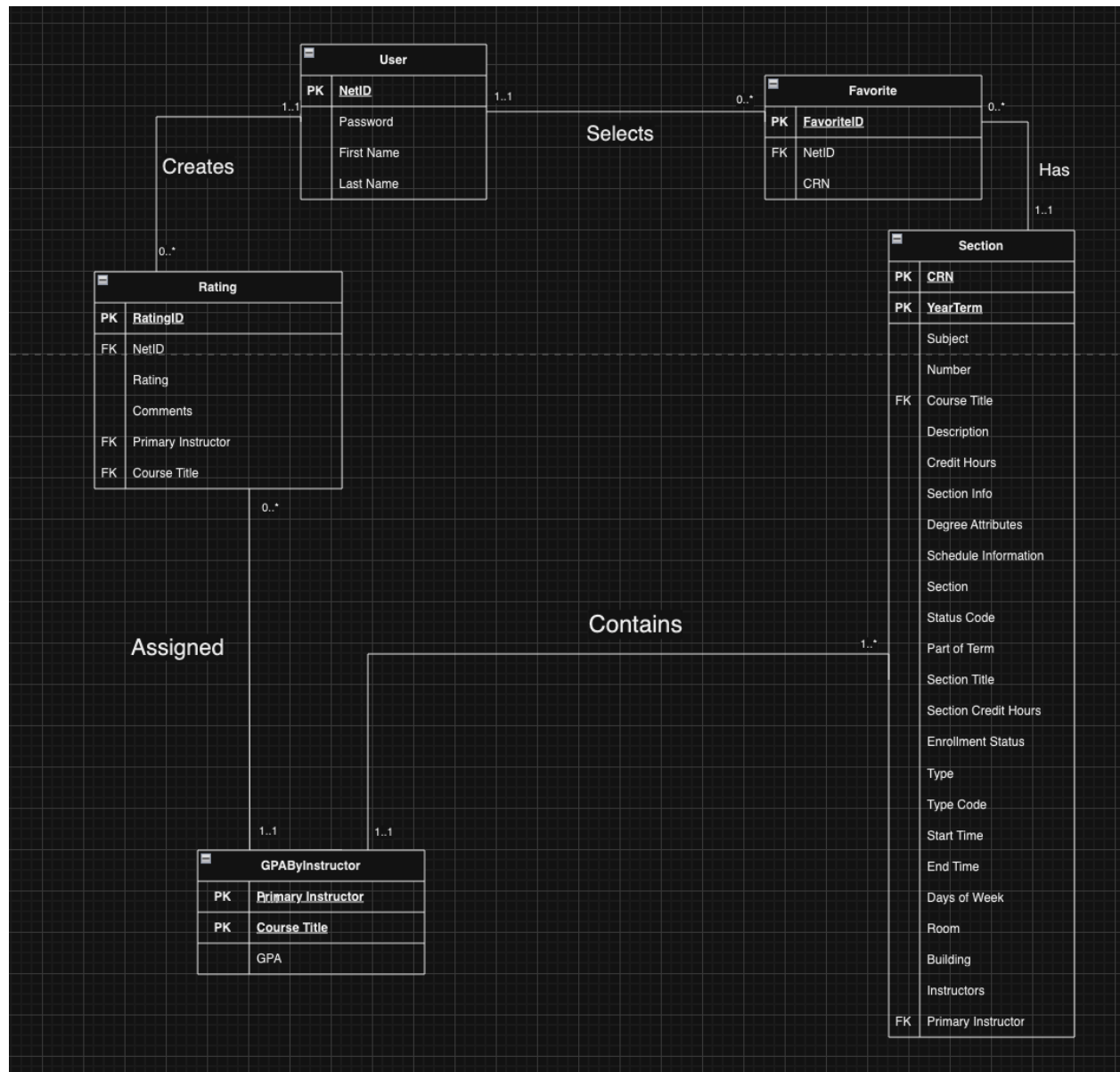


## UML Diagram:



# Entity Descriptions

**User:** Contains user login information

**Rating:** Contains a rating made by a user for a specific instructor that taught a course, with comments and a rating number out of 10

**Favorite:** Contains a favorite made by a user for a specific section

**Section:** Contains information about a specific section, same as course explorer

**GPAByInstructor:** Contains the average GPA for a course taught by a specific instructor

# Relationship Assumptions

(\* = any number of)

Each User can have 0 to \* Ratings

Each Rating must be made by 1 User

Each User can have 0 to \* Favorites

Each Favorite must belong to 1 User

Each Rating should be assigned to 1 GPAByInstructor

Each GPAByInstructor can have 0 to \* Ratings

Each Section can have 0 to \* Favorites

Each Favorite should correspond to 1 Section

Each Section should correspond to 1 GPAByInstructor

Each GPAByInstructor should include 1 to \* Sections

# BCNF

Our original diagram was already in BCNF. This is because all functional dependencies present in the relations are purely determined by the primary keys of those relations, meaning the left side is always a super key. Formally, for each relation:

**User:** NetID -> Password, FirstName, LastName

**Rating:** RatingID -> NetID, Rating, Comments, Primary Instructor, Course Title

**Favorite:** FavoriteID -> NetID, CRN

**Section:** CRN, YearTerm -> Subject, Number, Course Title, Description, Credit Hours, Section Info, Degree Attributes, Schedule Information, Section, Status Code, Part of Term, Section Title, Section Credit Hours, Enrollment Status, Type, Type Code, Start Time, End Time, Days of Week, Room, Building, Instructors, Primary Instructor

**GPABByInstructor:** Primary Instructor, Course Title -> GPA

## Relational Schema

Entities:

- **User** (NetID VARCHAR(20) [PK], Password VARCHAR(20), FirstName VARCHAR(20), LastName VARCHAR(20))
- **Rating** (RatingID VARCHAR(20) [PK], NetID VARCHAR(20) [FK to User.NetID], Rating INT, Comments VARCHAR(350), PrimaryInstructor VARCHAR(30) [FK to GPABByInstructor.PrimaryInstructor], CourseTitle VARCHAR(20) [FK to GPABByInstructor.CourseTitle])
- **Favorite** (FavoriteID VARCHAR(20) [PK], NetID VARCHAR(20) [FK to User.NetID], CRN INT)
- **Section** (CRN INT [PK], YearTerm VARCHAR(10) [PK], Subject VARCHAR(20), Number INT, CourseTitle VARCHAR(20) [FK to GPABByInstructor.CourseTitle], Description VARCHAR(100), CreditHours INT, SectionInfo VARCHAR(200), DegreeAttributes VARCHAR(20), ScheduleInformation VARCHAR(70), Section VARCHAR(20), Status Code VARCHAR(20), PartofTerm VARCHAR(20), SectionTitle VARCHAR(20), Section CreditHours INT, EnrollmentStatus VARCHAR(20), Type VARCHAR(10), TypeCode VARCHAR(10), StartTime VARCHAR(20), EndTime VARCHAR(20), DaysofWeek VARCHAR(20), Room VARCHAR(20), Building VARCHAR(20), Instructors VARCHAR(30), PrimaryInstructor VARCHAR(30) [FK to GPABByInstructor.PrimaryInstructor])
- **GPABByInstructor** (PrimaryInstructor VARCHAR(30) [PK], CourseTitle VARCHAR(20) [PK], GPA REAL)

