

# Data and Applications

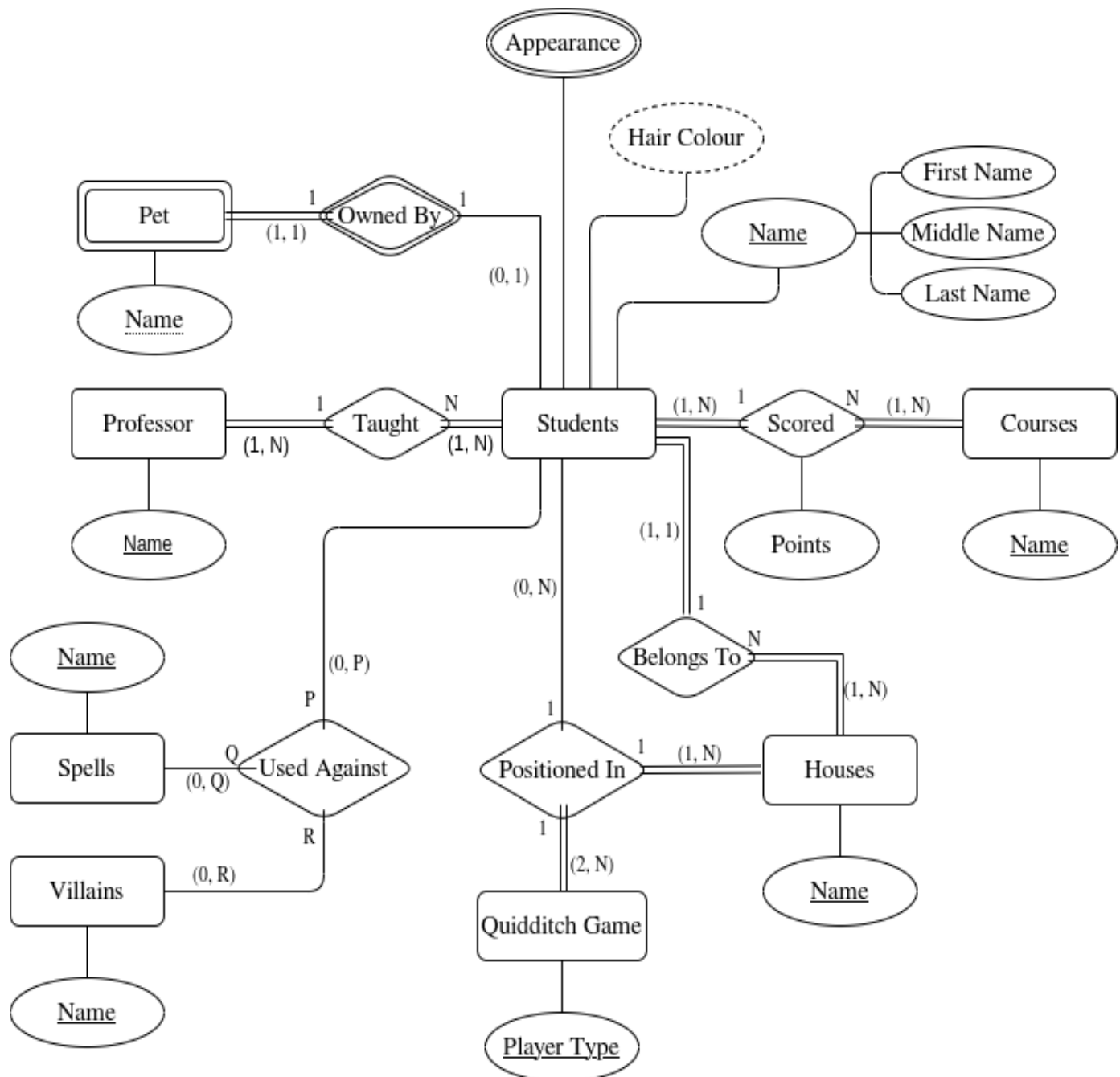
## Homework 2

### Harry Potter

Gowlapalli Rohit  
2021101113

Abhinav Reddy Boddu  
2021101034

Gnana Prakash Punnavajhala  
2021111027



## How to read the ER diagram:

- “Professor” (Entity Type) “Taught” (Relation) “Students” (Entity Type) with cardinality ratio 1:N
- “Pet” (Entity Type) is “Owned\_By” (Relation) “Students” (Entity Type) with cardinality ratio 1:1
- “Students” (Entity Type) “Belongs\_To” (Relation) “Houses” (Entity Type) with cardinality ratio 1:N
- “Students” (Entity Type) “Scored” (Relation) Points in “Courses” (Entity Type) with cardinality ratio 1:N
- “Students” (Entity Type) of “Houses” (Entity Type) are “Positioned\_In” (Relation) “Quidditch\_Game” (Entity Type) with cardinality ratio 1:1:1
- “Students” (Entity Type) “Used” (Relation) “Spells” (Entity Type) “Against” (Relation) “Villains” (Entity Type) with cardinality ratio P:Q:R

## Shortcomings of the Requirements Document:

- Key attributes have not been mentioned in the following entity types: “Students”, “Professors”, “Villains”, “Spells”, “Courses” and “Quidditch Game”
- In the “Houses” entity type, it was mentioned that the names of the houses: “Gryffindor”, “Ravenclaw”, “Hufflepuff”, “Slytherin” are the key attributes, i.e., these attribute values are the primary keys of the “Houses” entity type. This is wrong as values of attributes cannot be key attributes. Thus, the “Names” attribute is an appropriate key attribute.
- For the “Quidditch Game” attribute, no primary key attribute is mentioned. “Player Type” can be taken as the key attribute, whose attribute values are “Seekers”, “Keepers”, “Beaters” and “Chasers”.
- No (Min, Max) participation constraint notations have been mentioned in any of the relationships.
- The “Belongs To” relationship type must have cardinality ratio “1:N” as any number of students must belong to a house and a student can belong to only 1 house.
- The “Used\_against” relationship type will have cardinality ratio of P:Q:R as any number of students can use a particular spell among many such spells which in turn, will be used against many such villains.