"Ollert

Project Report
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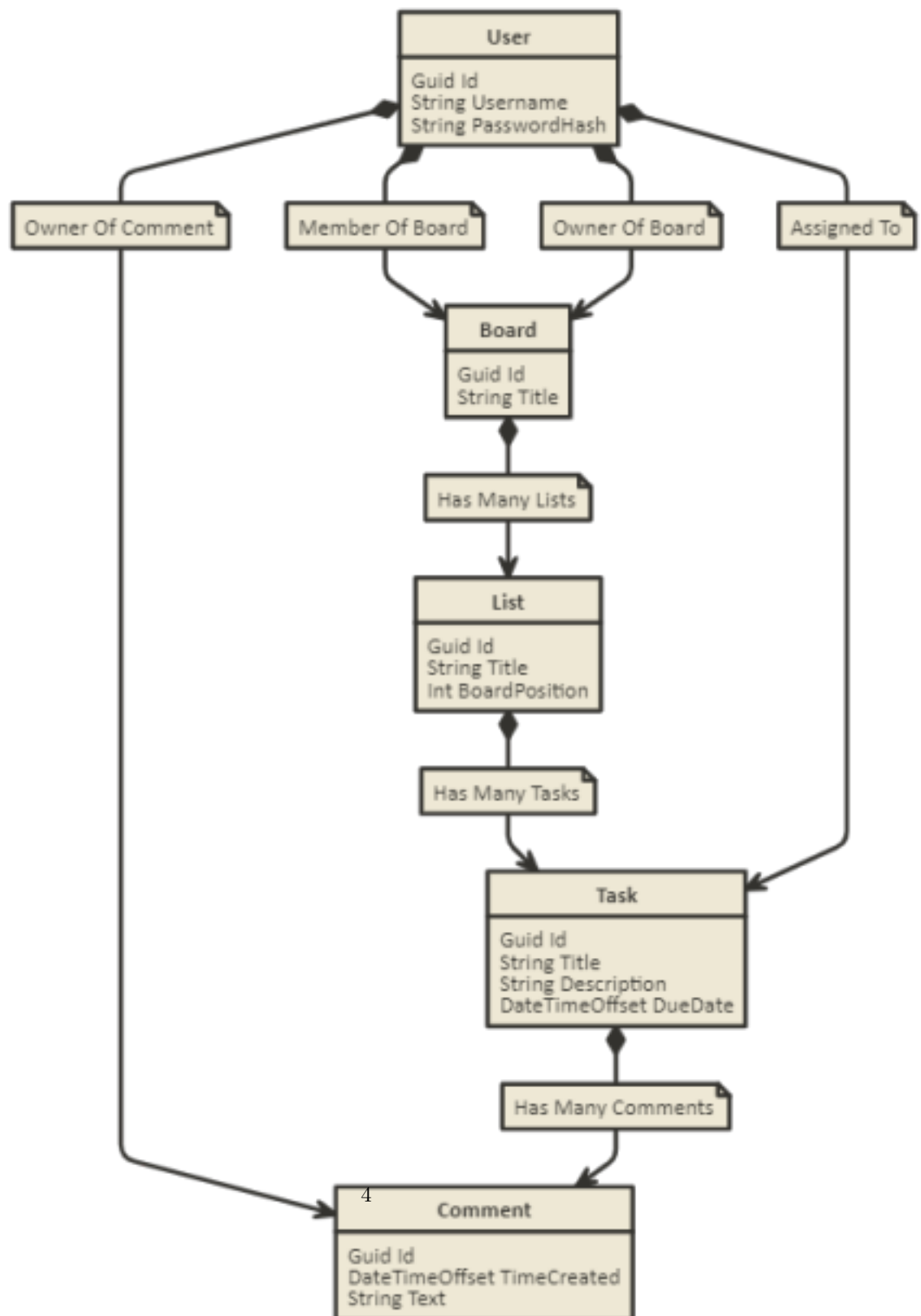William Woodfin

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1 Database Design

1.1 Introduction

1.2 ER Diagram

User
Guid Id
String Username
String PasswordHash

Owner Of Comment

Member Of Board

Owner Of Board

Assigned To

Board
Guid Id
String Title

Has Many Lists

List
Guid Id
String Title
Int BoardPosition

Has Many Tasks

Task
Guid Id
String Title
String Description
DateTimeOffset DueDate

Has Many Comments

Comment
Guid Id
DateTimeOffset TimeCreated
String Text

1.3 Identified Constraints

- Every application user must have both a username and a password

- Usernames must be unique

- Every board must have a title and must be associated with an existing owner

- Every comment must have an owner

- Every comment must have a time and text

- Every comment must be associated with an existing task

- Every list must have a title and must be associated with an existing board

- Every task must be associated with an existing list

- Every entity in every table has a unique id

1.4 Assumptions About the Domain

- Users should only have access to the boards they are members of

1.5 Database Design Process

1.6 Ollert's tables

1.6.1 Functional Dependencies

1.6.2 Primary Keys

- ApplicationUser
  - ApplicationUser.Id

- Board
  - Board.Id

- BoardMember
  - none

- List
  - List.Id

- Task
  - Task.Id

- TaskAssignee

- – none
- Comment
  - – Comment.Id

1.6.3 Foreign Keys

- Board
  - – ApplicationUser.Id
- BoardMember
  - – Board.Id
  - – ApplicationUser.Id
- List
  - – Board.Id
- Task
  - – List.Id
- TaskAssignee
  - – Task.Id
  - – ApplicationUser.Id
- Comment
  - – Task.Id
  - – ApplicationUser.Id

2 Database Implementation

2.1 Create Table Statements

```
1       create table ApplicationUser (
2         Id char (32) ,
3         Username varchar (100) not null ,
4         Passwordhash varchar (100) not null ,
5         primary key ( Id )
6       ) ;
7
```

Listing 1: ApplicationUser Table Creation Statement

```
1       create table Board (
2         Id char (32) ,
3         Title varchar (100) not null ,
4         OwnerId char (32) ,
5         primary key ( id ) ,
6         foreign key ( OwnerId ) references ApplicationUser ( Id )
7       ) ;
8
```

Listing 2: Board Table Creation Statement

```
1       create table BoardMember (
2         BoardId char (32) ,
3         MemberId char (32) ,
4         foreign key ( BoardId ) references Board ( Id ) ,
5         foreign key ( MemberId ) references ApplicationUser ( Id )
6       ) ;
7
```

Listing 3: BoardMember Table Creation Statement

```
1       create table List (
2         Id char (32) ,
3         Title varchar (100) not null ,
4         BoardPosition int not null ,
5         BoardId char (32) ,
6         primary key ( id ) ,
7         foreign key ( BoardId ) references Board ( Id )
8       ) ;
9
```

Listing 4: List Table Creation Statement

```
1       create table Task (
2         Id char (32) ,
3         Title varchar (100) not null ,
4         Descriptor varchar (500) not null ,
5         DueDate datetimeoffset ,
6         ListId char (32) ,
7         primary key ( id ) ,
```

```
8         foreign key ( ListId ) references List( Id )
9       )
10
```

Listing 5: Task Table Creation Statement

```
1       create table TaskAssignee(
2         TaskId char(32),
3         AssigneeId char(32),
4         foreign key ( TaskId ) references Task( Id ),
5         foreign key ( AssigneeId ) references ApplicationUser( Id )
6       )
7
```

Listing 6: TaskAssignee Table Creation Statement

```
1       create table Comment(
2         Id char(32),
3         TimeCreated datetimeoffset not null,
4         MessageText varchar(100) not null,
5         TaskId char(32),
6         OwnerId char(32),
7         primary key ( id ),
8         foreign key ( TaskId ) references Task( Id ),
9         foreign key ( OwnerId ) references ApplicationUser( Id )
10       )
11
```

Listing 7: Comment Table Creation Statement

2.2 Insert Statements

```
1   insert into ApplicationUser values ("19843875−6077−49", "Walter
      Rogers", "168
      E5F6A717237FB2232A8AFE2DAAE3F8D582C5D4CC0EAA268F05F420F1EC421")
      ;
2
3   insert into ApplicationUser values ("372a9ad5−4952−44", "Jean
      Bryant", "
      DAB12D7BB613EAC0304D9917738729FB37B60EBB1FB59FC9493ED64733CCE3BA
      ");
```

Listing 8: ApplicationUser Insert Statements

```
1   insert into Board values ("bbdd7100−cd10−41", "Sports Forum
      Mobile App", "19843875−6077−49");
2
3   insert into Board values ("62376bd0−6ecc−4f", "Untitled
      Platformer Game", "372a9ad5−4952−44");
```

Listing 9: Board Insert Statements

```
1   insert into BoardMember values ("fdd8f8a8−0d53−4f", "
      19843875−6077−49");
2
```

```
3   insert into BoardMember values ("bbdd7100−cd10−41", "372a9ad5
      −4952−44");
```

Listing 10: BoardMember Insert Statements

```
1   insert into List values ("64251244−40f5−45","Admin Website", 2, "
      bbdd7100−cd10−41");
2
3   insert into List values ("a583557a−3d83−4a","Art Design", 0, "
      62376bd0−6ecc−4f");
```

Listing 11: List Insert Statements

```
1   insert into Task values ("e01479d6−6019−4a", "Database Design", "
      Design a robust database schema for storing all the data in our
       app.", "20180120 09:00:00 +10:00", "0e72d679−da23−41");
2
3   insert into Task values ("d46993c0−ce64−46", "Story Design", "
      Write a fun story for the game.", "20180620 09:00:00 +10:00", "
      a583557a−3d83−4a");
```

Listing 12: Task Insert Statements

```
1   insert into TaskAssignee values ("ac1a2b65−d1fc−47","88b03172−135
      a−4b");
2
3   insert into TaskAssignee values ("a9f5ae59−6193−40","d263667b−
      ea46−4b");
```

Listing 13: TaskAssignee Insert Statements

```
1   insert into Comment values("c088cfa0−15e2−4f", "20180110 08:54:00
       +10:00", "I'm probably going to need some help with this.", "
      e01479d6−6019−4a", "372a9ad5−4952−44");
2
3   insert into Comment values("59646b1b−a084−49", "20180120 08:54:00
       +10:00", "So I'm thinking our game has a mario−like character
      − but green.", "a9f5ae59−6193−40", "d263667b−ea46−4b");
```

Listing 14: Comment Insert Statements

2.3   Data manipulation statements

2.3.1   Select statements

2.3.2   Other Statements

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Listings