

llert

Project Report
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1 Database Design

1.1 Introduction

1.2 ER Diagram

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 ( "bddd7100-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

2.3.3 Update statements

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