

# CPSC 304 Project Cover Page

Milestone #: \_\_2\_\_

Date: \_2024-03-01\_

Group Number: 13

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By typing our names and student numbers in the above table, we certify that the work in the attached assignment was performed solely by those whose names and student IDs are included above. (In the case of Project Milestone 0, the main purpose of this page is for you to let us know your e-mail address, and then let us assign you to a TA for your project supervisor.)

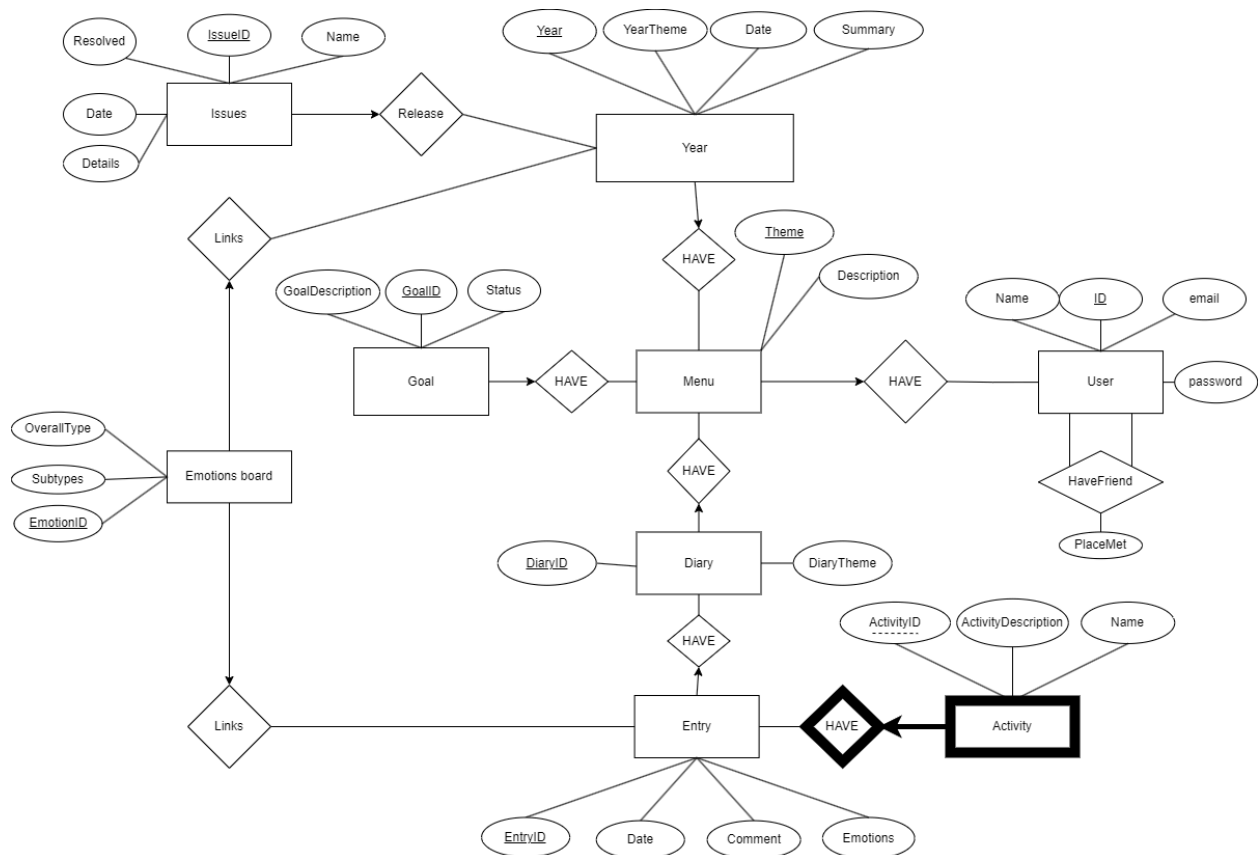
In addition, we indicate that we are fully aware of the rules and consequences of plagiarism, as set forth by the Department of Computer Science and the University of British Columbia

Project description:

A brief (~2-3 sentences) summary of your project.

The website is a diary-tracking platform designed to provide users with a personalized space for recording and reflecting on their daily experiences, emotions, and activities. The primary goal of the website is to allow users to document their thoughts, track their moods, and create a digital diary that serves as a valuable tool for self-reflection and emotional awareness.

3. The ER diagram you are basing your item #3 (below) on. This ER diagram may be the same as your milestone 1 submission or it might be different. If you have made changes from the version submitted in milestone 1, attach a note indicating what changes have been made and why.



Beside making the ActivityID to have dotted underline as suggested from the TA, we have decided to remove the ISA relationship as when doing the schema, we have found it to be quite redundant and confusing. The fact that the user can be a friend and both a main user means we can create a unary relationship. We have also changed some of the attribute names to avoid confusion (like Subtheme from year and Subtheme from Diary to YearTheme and DiaryTheme respectively). We deleted the "Issues" attribute of the Year entity since it causes a violation of 1NF.

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4. The schema derived from your ER diagram (above). For the translation of the ER diagram to the relational model, follow the same instructions as in your lectures. The process should be reasonably straightforward. For each table:

- List the table definition (e.g., Table1(attr1: domain1, attr2: domain2, ...)). Make sure to include the domains for each attribute.
- Specify the primary key (PK), **candidate key, (CK)** foreign keys (FK), and other constraints (e.g., not null, unique, etc.) that the table must maintain.

IssueTable(IssueID: Integer PK, Year: Integer NOT NULL FK, Name: varchar[50] NOT NULL, Resolved NOT NULL number(1), Date: date NOT NULL, Details: varchar[200])

Year(Year: Integer PK, Theme: varchar[50] NOT NULL FK, Yeartheme: varchar[50] NOT NULL, Date: date NOT NULL, Summary: varchar[200] NOT NULL)

Emotionboard(EmotionID: Integer PK, Year: Integer NOT NULL FK, EntryID: Integer NOT NULL FK, Subtypes: char[200], OverallType: varchar[50] NOT NULL)

Goal(GoalID: Integer PK, Theme: varchar[50] NOT NULL FK, Status: number(1) NOT NULL, GoalDescription: varchar[200] NOT NULL)

Menu(Theme: char[50] PK, ID: varchar[50] FK, Description: varchar[200])

Diary(DiaryID: Integer PK, Theme: varchar[50] NOT NULL FK, Diarytheme: varchar[50] NOT NULL)

Entry(EntryID: Integer PK, DiaryID: Integer NOT NULL FK, Date: date NOT NULL, Comment: varchar[200] NOT NULL, Emotions: varchar[200] NOT NULL)

Activity(ActivityID: Integer PK, EntryID: Integer PK FK, ActivityDescription: varchar[200]: NOT NULL, Name: varchar[50] NOT NULL)

User(ID: Integer PK, FriendCount: Integer NOT NULL, Name: varchar[50] NOT NULL, Email: varchar[50] NOT NULL UNIQUE CK, Password: varchar[50] NOT NULL)

HaveFriend(UserID: Integer PK FK, FriendID: Integer PK FK, PlaceMet: varchar[50])

#### 5. Functional Dependencies (FDs)

- Identify the functional dependencies in your relations, including the ones involving all candidate keys (including the primary key). PKs and CKs are considered functional dependencies and should be included in the list of FDs. You do not need to include trivial FDs such as  $A \rightarrow A$ .

IssueTable:

Date -> Year

Year:

Yeartheme -> Theme

EmotionsBoard:

Subtypes -> OverallTypes

Diary:

Diarytheme -> Theme

## 6. Normalization

a. Normalize each of your tables to be in 3NF or BCNF. Give the list of tables, their primary keys, their candidate keys, and their foreign keys after normalization. You should show the steps taken for the decomposition. Should there be errors, and no work is shown, no partial credit can be awarded without steps shown. The format should be the same as Step 3, with tables listed similar to Table1(attr1:domain1, attr2:domain2, ...). ALL Tables must be listed, not only the ones post-normalization.

Issue:

R1(Date, **Year**) and R2(Date, IssueID, Name, Resolved, Details)

Year:

R3(Yeartheme, **Theme**) and R4(Yeartheme, Year, Date, Summary)

EmotionsBoard:

R5(Subtypes, OverallTypes) and R6(Subtypes, EmotionID, **Year**, **EntryID**)

Diary:

R7(Diarytheme, **Theme**) and R8(Diarytheme, Diary)

Goal (No normalization):

R9(GoalID, **Theme**, Status, GoalDescription)

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Menu(No normalization):

R10(Theme, **ID**, Description)

Entry (No normalization):

R11(EntryID, **DiaryID**, Date, Comment, Emotions)

Activity (No normalization):

R12(ActivityID, **EntryID**, ActivityDescription, Name)

User (No normalization):

R13(ID, FriendCount, Name, Email, Password) (CK for R13 is Email)

HaveFriend (No normalization):

R14(UserID, FriendID)

7. The SQL DDL statements are required to create all the tables from item #6. The statements should use the appropriate foreign keys, primary keys, UNIQUE constraints, etc. Unless you know that you will always have exactly x characters for a given character, it is better to use the VARCHAR data type as opposed to a CHAR(Y). For example, UBC courses always use four characters to represent which department offers a course. In that case, you will want to use CHAR(4) for the department attribute in your SQL DDL statement. If you are trying to represent the name of a UBC course, you will want to use VARCHAR as the number of characters in a course name can vary greatly.

CREATE TABLE IssueDateYear(

    Date DATE

    Year INTEGER

    PRIMARY KEY (Date)

    FOREIGN KEY (Year) REFERENCES Year(Year)

)

CREATE TABLE Issue(

    Date DATE

IssueID INTEGER

Name VARCHAR(50)

Resolved NUMBER(1)

Details VARCHAR(200)

PRIMARY KEY (Date, IssueID)

)

CREATE TABLE YearTheme(

Yeartheme VARCHAR(50)

Theme VARCHAR(50) NOT NULL

PRIMARY KEY (Yeartheme)

FOREIGN KEY (Theme) REFERENCES Menu

)

CREATE TABLE Year(

Year INTEGER

Yeartheme VARCHAR(50)

Date DATE

Summary VARCHAR(200)

PRIMARY KEY (Yeartheme, Year)

)

CREATE TABLE EBType(

Subtypes VARCHAR(200)

OverallTypes VARCHAR(50)

PRIMARY KEY (Subtypes)

)

CREATE TABLE EB(

Subtypes VARCHAR(200)

EmotionID VARCHAR(50)

Year INTEGER

EntryID INTEGER

PRIMARY KEY (Subtypes, EmotionID)

FOREIGN KEY (Year) REFERENCES Year(Year)

FOREIGN KEY (EntryID) REFERENCES Entry

)

CREATE TABLE DiaryTheme (

Diarytheme VARCHAR(50) NOT NULL,

Theme VARCHAR(50) NOT NULL

PRIMARY KEY(Diarytheme)

FOREIGN KEY (Theme) REFERENCES Menu

)

CREATE TABLE Diary (

DiaryID INTEGER,

Diarytheme VARCHAR(50) NOT NULL,

PRIMARY KEY(DiaryID)

)

CREATE TABLE Goal (

```
GoalID INTEGER,  
Theme VARCHAR(50) NOT NULL,  
Status NUMBER(1) NOT NULL,  
GoalDescription VARCHAR(200) NOT NULL,  
PRIMARY KEY(GoalID)  
FOREIGN KEY (Theme) REFERENCES Menu  
)
```

```
CREATE TABLE Menu (  
    Theme VARCHAR(50),  
    Description VARCHAR(200),  
    UserID INTEGER,  
    PRIMARY KEY(Theme),  
    FOREIGN KEY(UserID) REFERENCES User(ID)  
)
```

```
CREATE TABLE Entry (  
    EntryID Integer,  
    DiaryID INTEGER NOT NULL,  
    Date DATE NOT NULL,  
    Comment VARCHAR(200) NOT NULL,  
    Emotions VARCHAR(200) NOT NULL,  
    PRIMARY KEY (ActivityID, EntryID),  
    FOREIGN KEY (DiaryID) REFERENCES Diary  
)
```



```
CREATE TABLE Activity (  
    ActivityID INTEGER,  
    EntryID Integer NOT NULL,  
    ActivityDescription VARCHAR(200),  
    Name VARCHAR(50) NOT NULL,  
    PRIMARY KEY (ActivityID, EntryID),  
    FOREIGN KEY (EntryID) REFERENCES Entry  
)
```

```
CREATE TABLE User (  
    ID Integer,  
    Name VARCHAR(50) NOT NULL,  
    Email VARCHAR(50) NOT NULL,  
    Password VARCHAR(50) NOT NULL,  
    PRIMARY KEY(ID)  
    UNIQUE(Email))
```

```
CREATE TABLE HaveFriend(  
    UserID Integer,  
    FriendID Integer,  
    PlaceMet VARCHAR(50),  
    PRIMARY KEY (UserID, FriendID),  
    FOREIGN KEY (FriendID) REFERENCES User(ID),  
    FOREIGN KEY (UserID) REFERENCES User(ID))
```

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8. INSERT statements to populate each table with at least 5 tuples. You will likely want to have more than 5 tuples so that you can have meaningful queries later. Note: Be consistent with the names used in your ER diagram, schema, and FDs. Make a note if the name has been intentionally changed.

```
INSERT INTO IssueDateYear VALUES (2022-4-22, 2022);
```

```
INSERT INTO IssueDateYear VALUES (2023-5-16, 2023);
```

```
INSERT INTO IssueDateYear VALUES (2021-2-21, 2021);
```

```
INSERT INTO IssueDateYear VALUES (2022-3-15, 2022);
```

```
INSERT INTO IssueDateYear VALUES (2019-2-12, 2019);
```

```
INSERT INTO Issue VALUES(2022-02-21, 1, 'Personal Health', 1, 'Not feeling well today')
```

```
INSERT INTO Issue VALUES(2021-03-23, 2, 'Self-Reflection', 0, 'Feel guilty about lying today')
```

```
INSERT INTO Issue VALUES(2023-01-24, 3, 'Challenge', 0, 'Cpsc 213 assignment is too hard')
```

```
INSERT INTO Issue VALUES(2024-10-03, 4, 'Relationship', 1, 'had a fight with my brother today')
```

```
INSERT INTO Issue VALUES(2024-10-03, 5, 'Dreams', 0, 'Maybe this isn't the right place I should be in')
```

```
INSERT INTO YearTheme VALUES('Watersports', 'Sports')
```

```
INSERT INTO YearTheme VALUES('First Year with Honours', 'Academic')
```

```
INSERT INTO YearTheme VALUES('Second Year with Honours', 'Academics')
```

```
INSERT INTO YearTheme VALUES('Japan Trip', 'Travel')
```

```
INSERT INTO YearTheme VALUES('Third Year with Honours', 'Academics')
```

```
INSERT INTO Year VALUES(2024, 'Watersports', 2024-2-01, 'A good year of playing marco polo')
```

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INSERT INTO Year VALUES(2022, 'First Year with Honours', 2022-1-12, 'A hard year because of cpSC 121')

INSERT INTO Year VALUES(2023, 'Second Year with Honours', 2023-7-9, 'Cpsc 210 my beloved')

INSERT INTO Year VALUES(2024, 'Third Year with Honours', 2024-8-12, 'I don't like finance')

INSERT INTO Year VALUES(2023, 'Japan Trip', 2023-12-5, 'Kamakura was great')

INSERT INTO EBType VALUES('Peaceful', 'Happy')

INSERT INTO EBType VALUES('Concerned', 'Anxious')

INSERT INTO EBType VALUES('Frustrated', 'Angry')

INSERT INTO EBType VALUES('Discouraged', 'Sad')

INSERT INTO EBType VALUES('Optimistic', 'Happy')

INSERT INTO EB VALUES('Peaceful', 'EM01', 2024, 'E001')

INSERT INTO EB VALUES('Discouraged', 'EM02', 2024, 'E002')

INSERT INTO EB VALUES('Cheerful', 'EM03', 2024, 'E003')

INSERT INTO EB VALUES('Anxious', 'EM04', 2024, 'E004')

INSERT INTO EB VALUES('Cheerful', 'EM03', 2024, 'E005')

INSERT INTO DiaryTheme VALUES('Watersports', 'Sports')

INSERT INTO DiaryTheme VALUES('First Year with Honours', 'Academics')

INSERT INTO DiaryTheme VALUES('Second Year with Honours', 'Academics')

INSERT INTO DiaryTheme VALUES('Third Year with Honours', 'Academics')

INSERT INTO DiaryTheme VALUES('Japan Trip', 'Travel')

INSERT INTO Activity VALUES(1, 'E001', 'Worked on a project', 'Work')

INSERT INTO Activity VALUES(2, 'E002', 'Ate congee', 'Food')

INSERT INTO Activity VALUES(3, 'E003', 'Ate out together', 'Food')

INSERT INTO Activity VALUES(4, 'E004', 'Studied for exams', 'Academics')

INSERT INTO Activity VALUES(5, 'E005', 'Ate together with family', 'Food Gathering')

INSERT INTO Goal VALUES (1, 'Health and Fitness', 0, 'Go to the gym every week');

INSERT INTO Goal VALUES (2, 'Personal Development', 1, 'Read a book once a month, maintain a healthy diet and drink more water');

INSERT INTO Goal VALUES (3, 'Career and Education', 0, 'Attend professional development workshops or seminars');

INSERT INTO Goal VALUES (4, 'Relationships', 0, 'Spend quality time with loved ones and start planning meaningful experiences with friends or family');

INSERT INTO Goal VALUES(5, 'Financial Management', 1, 'Create and stick to a budget and save \$300 every month');

INSERT INTO Menu VALUES('Sports', 'Soccer, basketball, badminton, etc', 1001);

INSERT INTO Menu VALUES('Academics', 'Midterms and finals date, assignments due, etc', 1001);

INSERT INTO Menu VALUES('Daily Life', 'what happened today, daily occurrences, etc', 1002);

INSERT INTO Menu VALUES('Food and Cooking', 'Interesting recipes, recent food cooked or eaten, etc', 1003);

INSERT INTO Menu VALUES('Travel', 'Recent travels, interesting places found, etc.', 1004);

INSERT INTO Entry VALUES ('E001', 101, '2024-02-26', 'Today was a productive day at work.', 'Happy');

INSERT INTO Entry VALUES ('E002', 102, '2024-02-25', 'Feeling a bit under the weather today.', 'Sick');

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```
INSERT INTO Entry VALUES ('E003', 103, '2024-02-24', 'Had a great time with friends at the park.', 'Joyful');
```

```
INSERT INTO Entry VALUES ('E004', 104, '2024-02-23', 'Feeling stressed about upcoming exams.', 'Anxious');
```

```
INSERT INTO Entry VALUES ('E005', 105, '2024-02-22', 'Celebrated mom''s birthday with a family dinner.', 'Grateful');
```

```
INSERT INTO Diary VALUES(1, 'Soccer', 'Sports')
```

```
INSERT INTO Diary VALUES(2, 'Cpsc 304', 'Academics')
```

```
INSERT INTO Diary VALUES(3, 'New Event', 'Daily Life')
```

```
INSERT INTO Diary VALUES(4, 'Spaghetti', 'Food and Cooking')
```

```
INSERT INTO Diary VALUES(5, 'Japan', 'Travel')
```

```
INSERT INTO User VALUES (1001, 150, 'Alice', 'alice@example.com', 'password123');
```

```
INSERT INTO User VALUES (1002, 200, 'Bob', 'bob@example.com', 'securepass');
```

```
INSERT INTO User VALUES (1003, 75, 'Jhin', 'jhin4@example.com', 'mysecretpass4');
```

```
INSERT INTO User VALUES (1004, 300, 'Diana', 'diana@example.com', 'p@ssw0rd');
```

```
INSERT INTO User VALUES (1005, 100, 'Aphelios', 'aphelios@example.com', 'strongPassword');
```

```
INSERT INTO HaveFriend VALUES (1001, 1002, 'Coffee shop');
```

```
INSERT INTO HaveFriend VALUES (1002, 1003, 'Gym');
```

```
INSERT INTO HaveFriend VALUES (1003, 1004, 'Workplace');
```

```
INSERT INTO HaveFriend VALUES (1001, 1004, 'School');
```

```
INSERT INTO HaveFriend VALUES (1005, 1001, 'Online community');
```