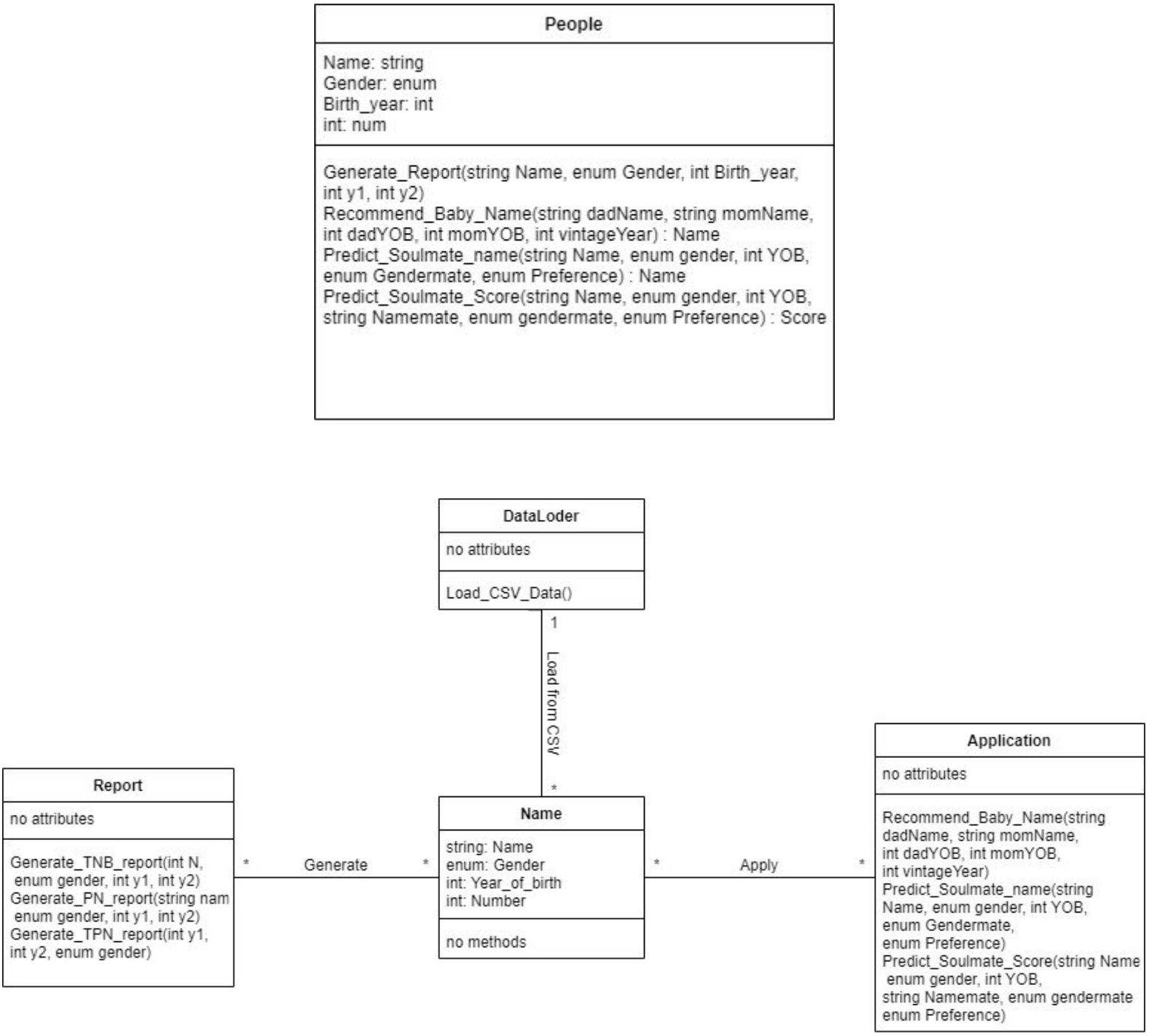
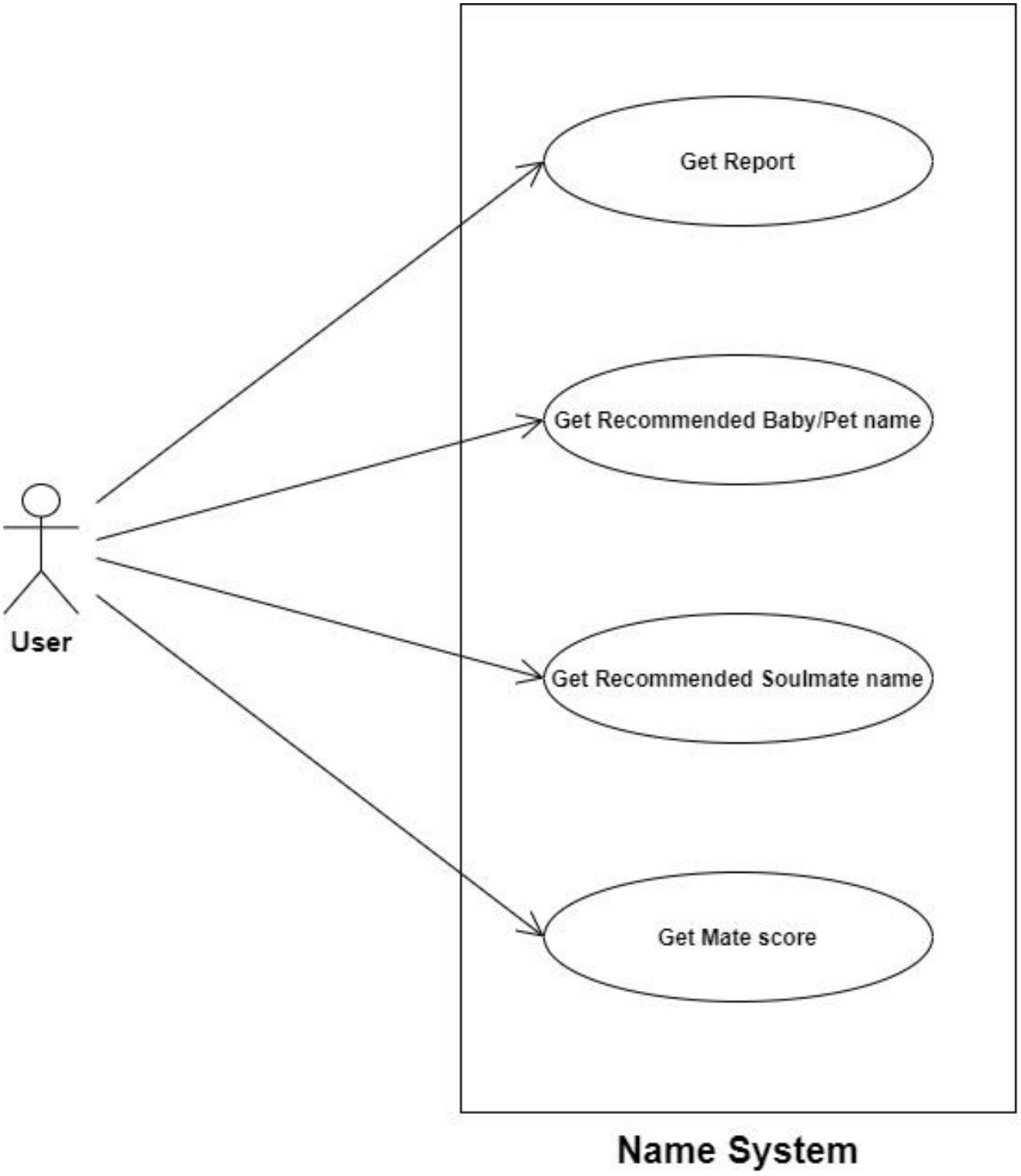
Class Diagram

For better illustration, we prepare 2 different versions for our clients. One is more concise and the other will be easier to understand.



Use Case


Get Report
Get Recommended Baby/Pet name
Get Recommended Soulmate name
Get Mate score
User
Name System

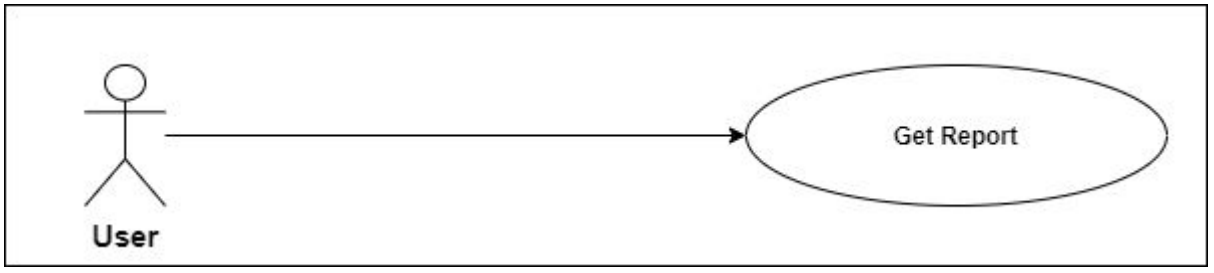
Use-case Detailed Specification

Use Case: Use the Name System to Generate Reports

Brief Description

This use case describes how a User gets a report (about the most popular names registered at birth over a certain period).

Use-case Diagram



Basic Flow

1. The user case begins when the user actor requests one of the three reports.
2. The system displays the interface for selecting the requested report.
3. While the user has an activity to perform
   3.1. If Top Names for Birth activity is selected
      3.1.1. The system The system displays the interface for typing in parameters and all buttons are activated.

{Input Data 1}

      3.1.2. The User indicates the gender, the number of names and period in which he would like to find the most popular names.

{Click Report Button 1_1}

      3.1.3. If the REPORT button is pressed

      3.1.4. The system retrieves the input parameters and then searches relevant data and then displays a short summary of the result. “Over the period y1 to y2, name. for gender has held the top spot most often. For a total of k times.” And also displays a detailed result shown with a table to show the top N popular names of that period.

      3.1.5. The User gets the report of the queries on the most popular names registered at birth over a given period.

   3.2. If Popularity of Name activity is selected

3.2.1. The system The system displays the interface for typing in parameters and all buttons are activated.

{Input Data 2}

3.2.2. The user indicates the name, gender and period of time for his/her report

{Click Report Button 1_2}

3.2.3. If the REPORT button is pressed

3.2.4. The system retrieves the input parameters and then searches relevant data and then displays a short summary of the result. “Over the period y1 to y2, name. for gender has held the top spot most often. For a total of k times.” And also displays a detailed result shown with a table to show the top N popular names of that period.

3.2.5. The User gets the report of the queries on the most popular names registered at birth over a given period

3.3. If Trend in Popularity of Names activity is selected

3.3.1 The system displays the interface for input parameters and activate all buttons.

{Input Data 3}

3.3.2. The user specifies the gender and period of time to be reported.

{Click Report button 1_3}

3.3.3. The system retrieves the input and searches for relevant data.

3.3.4. The system displays a summary and a detailed table showing the names that have shown the largest rise/fall in popularity over the given period.

4. The use case ends.

Alternative Flows

A1: Invalid Input of Top N

At **{Click Report Button 1_1}** if the entered Top N is invalid (N < 1 or it is non-integer or hasn’t been input),

1. The system displays a warning that “Sorry, Top N is invalid, please type again!” to the user to warn that the Top N is invalid.

2. The flow of events is resumed at **{Enter Term 1}**.

A2: Invalid Input of Period 1

At **{Click Report Button 1_1}** if the entered period is invalid (year is out-of-bound, non-integer or hasn't been input),

1. The system displays a warning that "Sorry, Period is invalid, please type again!" to remind the User that the Period is invalid.

2. The flow of events is resumed at **{Input Data 1}**.

A3: No Gender Selected_1

At **{Click Report Button 1_1}** if the User has not selected either of the genders,

1. The system notifies the User that this report is currently not available, and the Gender hasn't been chosen yet by showing "Sorry, No Gender has been chosen yet, please choose either one".

2. The flow of events is resumed at **{Input Data 1}**.

A4: Invalid Input of Period_2

At **{Click Report Button 1_2}** if the input time period is invalid or illegal

1. The system displays a warning that "Sorry, Period is invalid, please type again!" to remind the User that the Period is invalid

2. the flow of events is resumed at **{Input Data 2}.**

A5: No Gender Selected_2

At **{Click Report Button 1_2}** if the User has not selected either of the genders,

1. The system notifies the User that this report is currently not available, and the Gender hasn't been chosen yet by showing "Sorry, No Gender has been chosen yet, please choose either one".

2. The flow of events is resumed at **{Input Data 2}**.

A6: No gender selected 3

At **{Click Report button 1_3}** if no gender is selected.

1. The system informs the user that the gender is not selected

2. The flow of events is resumed at **{Input data 3}.**

A7: Invalid Input of Period 3

At **{Click Report button 1_3}** if the entered period of time is invalid or illegal.

1. The system informs the user that the input period is invalid or illegal.

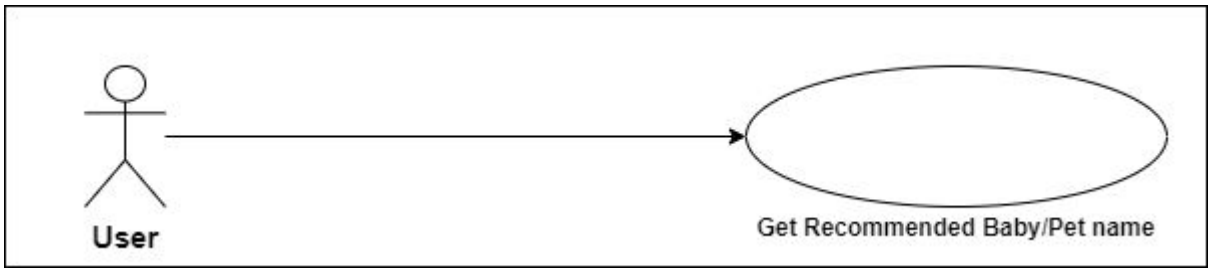
2. The flow of events is resumed at **{Input data 3}.**

Use Case: Use the Name System to Get Recommended Names

Brief Description

This use case describes how a User gets recommended names for their babies or pets.

Use-case Diagram



Basic Flow

1. The use case begins when the Instructor actor chooses the Tab “Reporting 1”.
2. The system displays the interface of parameters typing for the name recommendation function and all buttons are activated.

{Input Data}

3. The User indicates the Father’s name(dadName), Father’s year of birth(dadYOB) Mother’s name(momName), Mother’s year of birth(MomYOB) and a year from 1880 to 2019(vintageYear) in which they would like to get the recommended names.

{Click Recommend Button}

4. If the RECOMMEND button is pressed
    - 4.1. The system retrieves the input parameters and checks whether all of them are valid (all values are input and in-bounded). If all of them are valid, it then searches the ranking of father’s and mother’s names of their years of birth from the database to compute the dadRank and momRank.

{Set dadRank}

- 4.2. The system gets the ranking of dadName in dadYOB and sets dadRank to the ranking of mother’s name for his birth year.

{Set momRank}

- 4.3. The system gets the ranking of momName in momYOB and sets momRank to the ranking of mother’s name for her birth year.

{Compute Recommended Names}

4.4. System uses the data of dadRank and momRank and the vintageYear to retrieve the name of dadRank in vintageYear and name of momRank in vintageYear.
4.5. The system displays the recommended names to the User.
4.6. The User gets the recommended names for both girls and boys.

5. The use case ends.

Alternative Flows

A4_1: Invalid Input of dadName

At **{Click Recommend Button}** if the entered dadName is invalid (non-string or hasn't been input),

1. The system displays a warning that "Sorry, dadName is invalid, please type again!" to the user to warn that the Top N is invalid.
2. The flow of events is resumed at **{Input Data}**.

A4_2: Invalid Input of momName

At **{Click Recommend Button}** if the entered momName is invalid (non-string or hasn't been input),

1. The system displays a warning that "Sorry, TmomName is invalid, please type again!" to the user to warn that the Top N is invalid.
2. The flow of events is resumed at **{Input Data}**.

A4_3: Invalid Input of vintageYear

At **{Click Recommend Button}** if the entered period is invalid (year is out-of-bound or non-integer),

1. The system displays a warning that "Sorry, Period is invalid, please type again!" to remind the User that the Period is invalid.
2. The flow of events is resumed at **{Input Data}**.

A4_4: No vintageYear Input

At **{Click Recommend Button}** if the User has not typed the vintageYear,

1. The system just set the value of vintageYear to 2019.
2. The flow of events is resumed at **{Set dadRank}**.

A4_5: dadName is not ranked in dadYOB

At **{Set dadRank}** if the system has not received the ranking of dadName of dadYOB,

1. The system just set the value of dadRank to 1.
2. The flow of events is resumed at **{Set momRank}**

A4_6: momName is not ranked in momYOB

At **{set momRank}** if the system has not received the ranking of dadName of dadYOB,

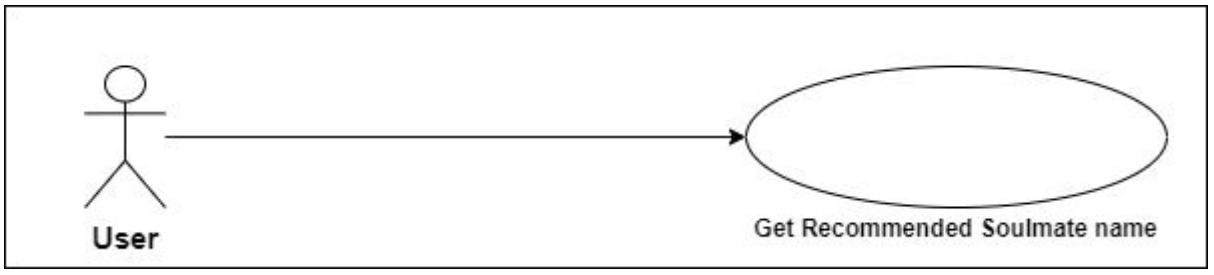
1. The system just set the value of dadRank to 1.
2. The flow of events is resumed at **{Compute Recommended Names}**

Use Case: Prediction on Names for Compatible Pairs

Brief Description:

This use case describes how a user receives the prediction on his/her potential soulmate's name.

Use-case Diagram:



Basic flow:

1. The use case begins when the user actor selects to predict the name of his/her soulmate.

2. The system displays the interface for predicting soulmate's name.

{Input data 5}

3. The user indicates his/her name, gender, year of birth, preferred soulmate's gender and preference on soulmate's age.

{Compute gender ranking}

4. The system computes the gender ranking (orank) of name in the input year of birth

{Recommend soulmate's name}

4. The system retrieves and displays the predicted soulmate' name according to the orank.

5. The use case ends.

Alternative flows:

A5_1: Invalid year of birth

At **{Compute gender ranking}** if the input year of birth is invalid,

1. The system notifies the user that his/her year of birth is invalid

2. The flow of events is resumed at **{Input data 5}**

A5_2: No gender selected

At **{Compute gender ranking}** if the user has not selected either of the genders,

1. The system notifies the user that his/her gender is not selected.

2. The flow of events is resumed at **{Input data 5}**

A5_3: No preference of mate selected

At **{Compute gender ranking}** if the user has not selected either of the preference,

1. The system notifies the user that his/her mate preference is not selected.

2. The flow of events is resumed at **{Input data 5}**

A5_4: No input name

At **{Compute gender ranking}** if the user does not input his/her name,

1. The system informs the user that no name input is detected.

2. The flow of events is resumed at **{Input data 5}**

A5_4: Input name is not ranked in input year of birth

At **{Recommend soulmate's name}** if the input name is not ranked in the input year of birth

1. The system informs the user that his/her gender ranking of name in his/her year of birth is not available and the orank will be set to 1 automatically.

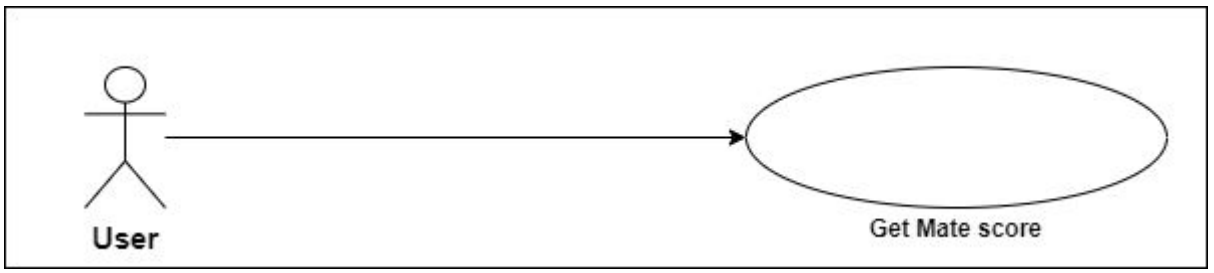
2. The flow of events is resumed at **{Recommend soulmate's name}**

Use Case: Prediction on Scores for Compatible Pairs

Brief Description:

This use case describes how a user receives the prediction score on the chance of engaging in love affairs with someone.

Use-case Diagram:



Basic flow:

1. The user case begins when the user actor asks for the prediction score on the chance of engaging in love affairs with someone.

2. The system displays the score prediction interface for input parameters and activates all buttons.

{Input data 6}

3. The user indicates his/her name, gender, year of birth, and preference of mate, and also his/her preferred mate's name and gender.

{Click get score button}

4. The user clicks the generate score button

{Generate Starts}

5. The system retrieves the input and searches for relevant data

    5.1. If user select iPreference asYounger

        5.1.1. The system sets oY0B = iY0B + 1.

    5.2. else if user select iPreference as Older

        5.2.1.The system sets oY0B = iY0B - 1.

6. The system provides a score of compatibility according to NK-T6 Algorithm.

7. The use case ends.

Alternative flows:

A6_1: No user gender selected

At **{Click get score button}** if the user's gender is not selected.

1. The system informs the user that his/her gender is not selected.

2. The flow of events is resumed at **{Input data 6}**

A6_2: Invalid user name input

At **{Click get score button}** if the entered user name is invalid or illegal.

1. The system informs the user that his/her input name is invalid or illegal.

2. The flow of events is resumed at **{Input data 6}**

A6_3: User name not found in birth of year

At **{Click get score button}** if the user name is not found in the user birth of year.

1. The system sets oRank = 1.

2. The flow of events is resumed at **{Generate Starts}**

A6_4: Invalid user year of birth input

At **{Click get score button}** if the entered user year of birth is invalid or illegal.

1. The system informs the user that his/her year of birth is invalid or illegal.

2. The flow of events is resumed at **{Input data 6}**

A6_5: Invalid preferred mate's name input

At **{Click get score button}** if the entered preferred mate's name is invalid or illegal.

1. The system informs the user that his/her preferred mate's name is invalid or illegal.

2. The flow of events is resumed at **{Input data 6}**

A6_6: Preferred mate's name not found in preference of birth of years

At **{Click get score button}** if the entered preferred mate's name is not found in the birth of years preference of the user.

1. The system sets oRankMate = 1.

2. The flow of events is resumed at **{Generate Starts}**

A6_7: No preferred mate gender selected

At **{Click get score button}** if user's preferred mate's gender is not selected.

1. The system informs the user that his/her preferred mate's gender is not selected.

2. The flow of events is resumed at **{Input data 6}**

A6_8: No preference of mate selected

At **{Click get score button}** if no user's preference of mate is not selected.

1. The system informs the user that his/her preference of mate is not selected.

2. The flow of events is resumed at **{Input data 6}**