
COMP 3059 – Capstone Project I

Requirements Analysis and Design

1.0 Introduction

1.1 - Purpose

This document shows what will be done in the project. The document will also help the stakeholder understand some of the terminologies used to explain how the web application will work and what the scopes are.

The application is going to find friends for user's children. Users of the web application are going to be parents who are adults. In this application, users can search friend for their children based on different criteria such as their children's personality, language, favorite games, favorite sports, favorite dances, nationality, same school, same neighborhood and special needs for CWDS (children with disabilities) and so on.

In this application, people will not have any access to other people's profile information as long as their state is not friend. As soon as user searches a friend based on his or her filtering ideas, system will find the closest match and let user to send a message or an email to schedule a meeting. Parents will meet each others and if they find out that their children have found a good relationship with each other then they can decide to accept the friend request and will be able to see their friends profile's information.

The main purpose of this web application is helping parents to find better friends for their children who are under age of thirteen. In addition, parents will have the chance to share their experience with each other to provide a better and healthier nurture for their children.

1.2 - Scope

The scope of this project is to design a web application, which can match and find friends based on some criteria defined by user.

1.2.1 In Scope

- Finding friends for children based on parent's criteria.
- Option for searching friend based on language.
- Option for searching friend based on nationality.
- Option for searching friend based on children's hobbies.
- Option for searching friend based on personality.
- Option for searching friend based on skills such as dance, sport, playing music, singing or any kind of skills for children.
- Option for searching friend based on especial needs for CDWS.
- Option for searching friend based on allergies.
- Option for searching friend based on children's favorites game or activities.

1.2.2 Out of Scope

- System will not match any friends for adults; neither provides extra features such as finding daycare, health care or schools.
- The application will not provide the functionality of sharing media contents such as, picture, movies, audio or files.

2.0 System Overview

2.1 Project Perspective

2.1.1 About the company:

The idea of this application is unique and still there is not any similar application with similar idea in market. There are no other companies with the same purpose.

2.1.2 About the project:

A web application that gives the users some tools for searching friends for their children based on their criteria.

2.1.3 Business Opportunity

With this application, we will provide help to many families such as new comers, those who have recently moved to a new town or city, families with children with special needs and many more to find friends for their children. The friend matching

process is based on the criteria defined by parents. This can benefit the parents too as they can meet and share experiences. The application has the best opportunity of the power of the first mover advantage based on business driven information system, for there is no such application with the same functionalities in the market. In addition, this application can grow and add many other features in future based on the market's requirements. Moreover, in future this web application can be used world wide, for parents will be able to take advantages of this web application's wide features in all around the world.

2.2 System Context

What made me think of this web application?

Looking at some friends and families around us we see some families are struggling some issues that might happen to anyone, which made me think there should be a solution for them. Two of these major issues are as below:

First, nowadays lots of people immigrate due to various issues in their life. Some of which can be economic issues, religious and so many other issues. They immigrate with the hope of having a better life for themselves and their children. As a result of this immigration the children would suffer the most, as they have lost their friends and need to learn a new language fast to be able to communicate and find new friends. This issue is not only limited to immigration, relocating to a new city might have the same impact.

Second, I have noticed that most of the times, when the parents find out their children has some type of disorders/disabilities or special situations such as autism, Down syndrome or any disorder caused by an accident, they go in a shocked mode and some times they panic due to lack of experience on how to deal with their child.

What my web application can do to address issues above?

This web application is providing a platform for parents to create profiles for their family and each child individually. On the child's profile they have the option to provide as much information as they want including but not limited to age, location, skills, languages, sports, personalities, arts, special needs, allergies, hobbies and etc. Then they can specify which criteria has to match and search for friends. Once they selected their desired options, system will search and find best matches inline with the parent's selection. This can help parents find new friends for their children based on what they care most, quicker and easier.

In addition, the system will provide families the chance of sharing the experience and talk through similar issues and situations. This will help most families, especially those who have children with special needs to realize they are not the only affected parents.

Based on the explanation above this web application will let the users to make a profile for each one of their child and search different friends based on different criteria for each child. All the criteria that users can have are all the in scopes.

2.3 General Constraints

The most important constraint is how to introduce the web application to parents and explain them all the benefits they can gain by using the application.

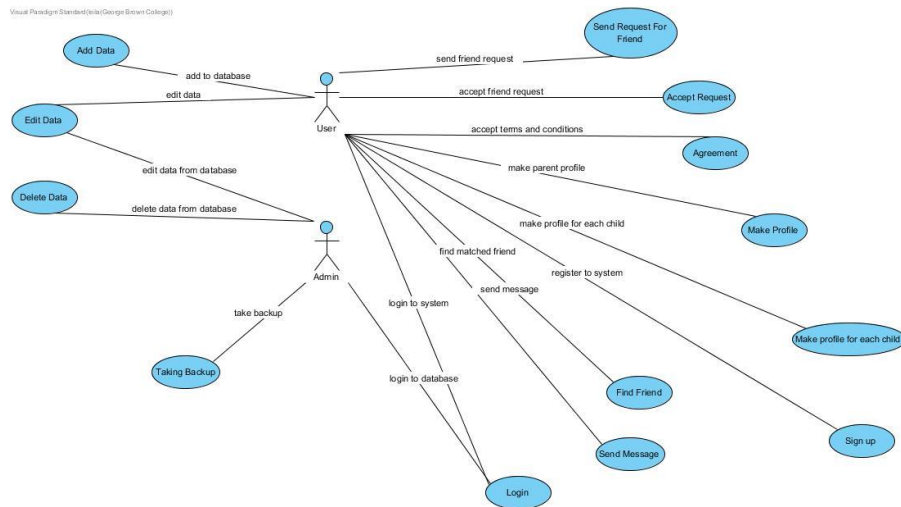
Another important constraint is the number of users. For finding the best match for each user, we need, as many users as possible, and advertising the application require a good marketing team and enough funds for all the advertisement's costs. For the testing phase we will be asking friends and family to start using the web application.

2.4 Assumptions and Dependencies

- Similar families exist in the same neighbourhood
- Amazon Web services are always up and running
- Admins and users have internet access

3.0 Functional Requirements

3.1 Search Friend Match



Brief Description

The user will search for friend match based on the criteria

Initial Step-By-Step Description

- 1- User signs up to the application
- 2- User agrees to the terms and conditions
- 3- The system check all the validations
- 4- The system add the user to the database
- 5- User makes profile for each child
- 6- The system adds the information of each child to the database
- 7- User starts finding friends
- 8- User finds a friend based on his or her considerations and interests
- 9- The system finds the matched friends
- 10- The system reports the number of friends nearby
- 11- The system shows the matched friends as points on google map
- 12- User should send a request to the matched friend
- 13- Matched friend accept the request
- 14- User sends message to the new friend

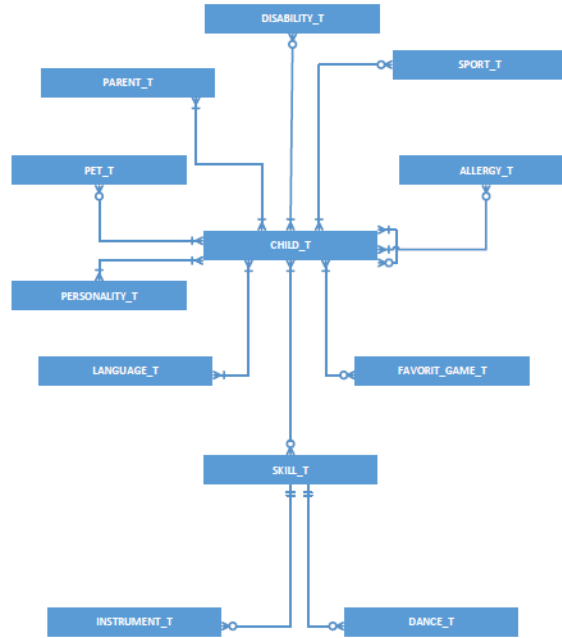
3.2 - Use Cases

3.2.1 Parent	
Actors (Internal Users, External Users, System)	Parent
Description	<p>Parent should register through the application and make a profile for their children separately, depending on child's needs.</p> <p>Parent should be able to find friends for each child based on their considerations and interests</p> <p>Parents should be able to contact with the matched friend and send messages.</p>
Preconditions	Parents should read and agree with the terms and conditions of the application before they can start using the system.
Flow of events	<ol style="list-style-type: none"> 1. User signs up to the application 2. User agrees to the terms and conditions 3. The system check all the validations 4. The system add the user to the database 5. User makes profile for each child 6. The system adds the information of each child to the database 7. User starts finding friends 8. User finds a friend based on his or her considerations and interests 9. The system finds the matched friends 10. The system reports the number of friends nearby 11. The system shows the matched friends as points on google map 12. User should send a request to the matched friend 13. Matched friend accept the request 14. User sends message to the new friend
3.2.2 Use Case	
Actors (Internal Users, External Users, System)	Web System Administrator
Description	Admin should have access to all tables of database and modify or delete. Admin Establishes Web system specifications by analyzing access, information, and security requirements, designing system infrastructure. Upgrades Web system services; developing, testing, evaluating, and installing enhancements and new updates. Admin should take care of backup system as well
Preconditions	Admin should sign a nondisclosure contract
Flow of events	<ol style="list-style-type: none"> 1. Admin should sign in to the dashboard 2. Admin should have access to delete or modify the data 3. Admin should test and debug the new updates 4. Admin install new versions or updated versions 5. Admin should take manage and maintain backup and restore.

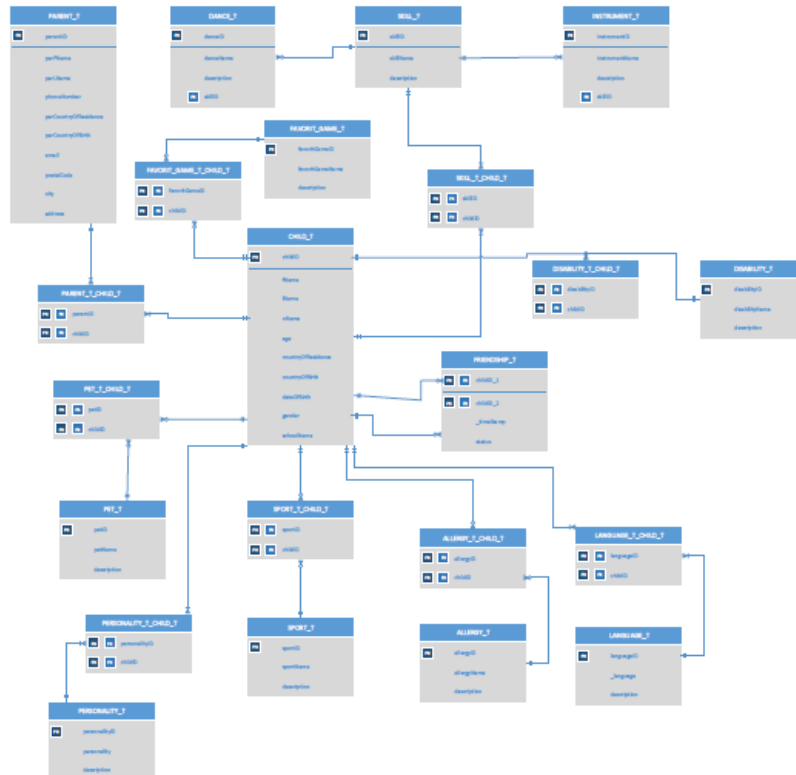
3.3 Data Modelling and Analysis

Because of the size of pictures, we will add separate files for each data model as well

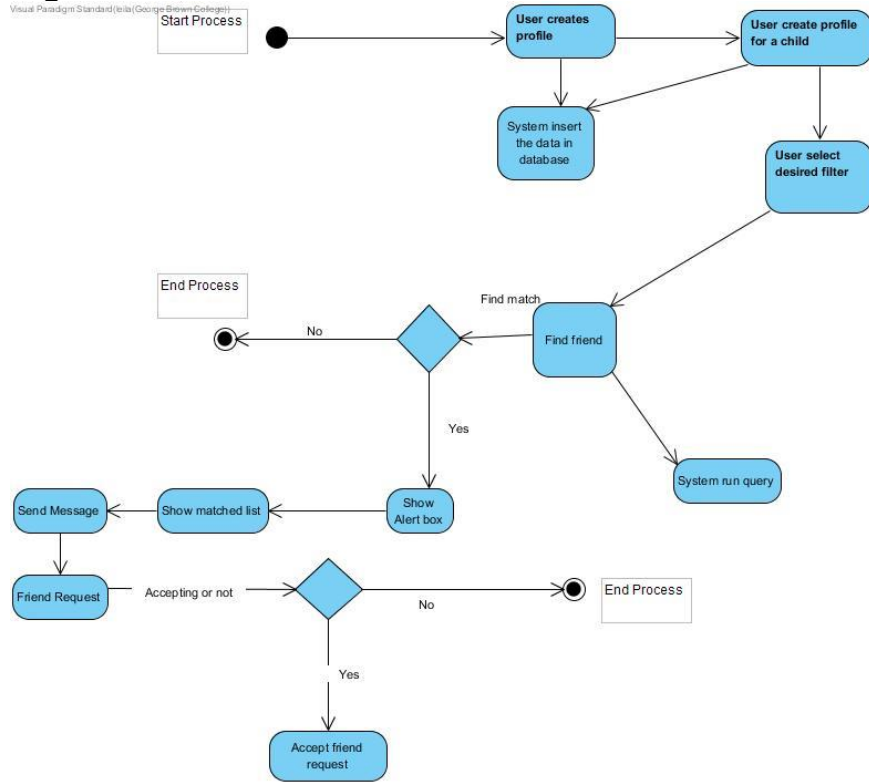
Conceptual Data Model:



Logical Data Model:



Activity Diagrams:



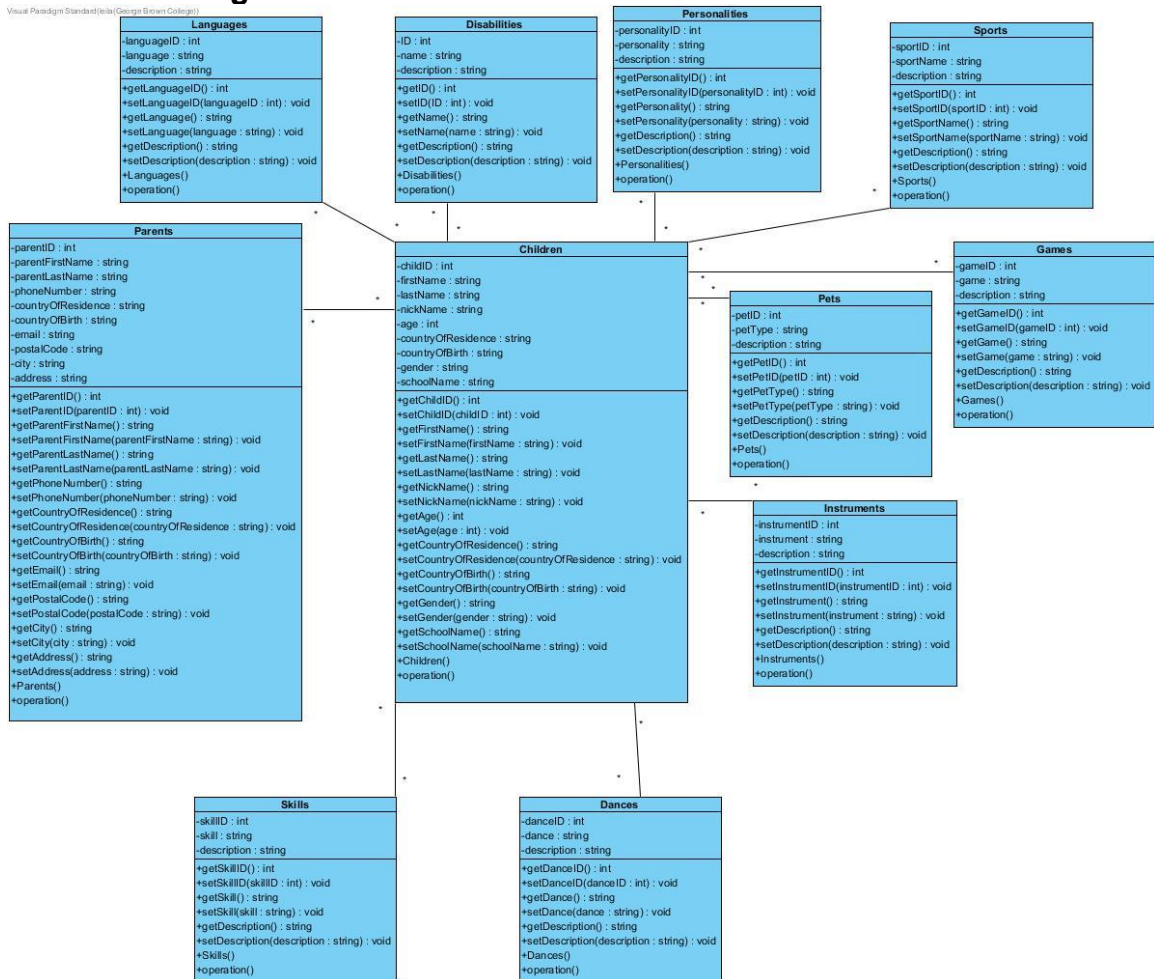
Physical Diagrams:

Field Name	Description	Data type	Field Size	Nullable	Table
childID	Primary Key	INT	11	NOT	CHILD_T
fName	First Name	VARCHAR	100	NOT	CHILD_T
lName	Last Name	VARCHAR	100	NOT	CHILD_T
nName	Nick Name	VARCHAR	100		CHILD_T
age	Age	INT	2		CHILD_T
countryOfResidence	Country of Residence	VARCHAR	100	NOT	CHILD_T
countryOfBirth	Country Of Birth	VARCHAR	100	NOT	CHILD_T
dateOfBirth	Date Of Birth	DATE		NOT	CHILD_T
gender	Gender	CHAR	1	NOT	CHILD_T
schoolName	School Name	VARCHAR	100		CHILD_T
parentID	Primary Key	INT	11	NOT	PARENT_T
parFName	Parent First Name	VARCHAR	100	NOT	PARENT_T
parLName	Parent Last Name	VARCHAR	100	NOT	PARENT_T
phoneNumber	Phone Number	VARCHAR	100		PARENT_T
parCountryOfResidence	Parent Country Of Residence	VARCHAR	100	NOT	PARENT_T
parCountryOfBirth	Parent Country Of Birth	VARCHAR	100	NOT	PARENT_T
email	parent Email	VARCHAR	100	NOT	PARENT_T

postalCode	Postal Code	VARCHAR	30	NOT	PARENT_T
city	City	VARCHAR	50	NOT	PARENT_T
address	Address	VARCHAR	200	NOT	PARENT_T
skillID	Primary Key	INT	11	NOT	SKILL_T
skillName	Skill Name	VARCHAR	50	NOT	SKILL_T
description	Description	VARCHAR	100		SKILL_T
instrumentID	Primary Key	INT	11	NOT	INSTRUMENT_T
instrumentName	Instrument Name	VARCHAR	50	NOT	INSTRUMENT_T
skillID	Foreign Key	INT	11	NOT	INSTRUMENT_T
description	Description	VARCHAR	100		INSTRUMENT_T
disabilityID	Primary Key	INT	11	NOT	DISABILITY_T
disabilityName	Disability Name	VARCHAR	100	NOT	DISABILITY_T
description	Description	VARCHAR	100		DISABILITY_T
sportID	Primary Key	INT	11	NOT	SPORT_T
sportName	Sport Name	VARCHAR	50	NOT	SPORT_T
description	Description	VARCHAR	100		SPORT_T
petID	Primary Key	INT	11	NOT	PET_T
petName	Pet Name	VARCHAR	50	NOT	PET_T
description	Description	VARCHAR	100		PET_T
languageID	Primary Key	INT	11	NOT	LANGUAGE_T
_language	Language	VARCHAR	50	NOT	LANGUAGE_T
description	Description	VARCHAR	100		LANGUAGE_T
favoritGameID	Primary Key	INT	11	NOT	FAVORIT_GAME_T
favoritGameName	Favorit Game Name	VARCHAR	100	NOT	FAVORIT_GAME_T
description	Description	VARCHAR	100		FAVORIT_GAME_T
danceID	Primary Key	INT	11	NOT	DANCE_T
danceName	Dance Name	VARCHAR	100	NOT	DANCE_T
skillID	Foreign Key	INT	11	NOT	DANCE_T
description	Description	VARCHAR	100		DANCE_T
allergyID	Primary Key	INT	11	NOT	ALLERGY_T
allergyName	Allergy Name	VARCHAR	100	NOT	ALLERGY_T
description	Description	VARCHAR	100		ALLERGY_T
skillID	Primary Key / Foreign Key	INT	11	NOT	SKILL_T_CHILD_T
childID	Primary Key / Foreign Key	INT	11	NOT	SKILL_T_CHILD_T
parentID	Primary Key / Foreign Key	INT	11	NOT	PARENT_T_CHILD_T
childID	Primary Key / Foreign Key	INT	11	NOT	PARENT_T_CHILD_T
childID_1	Primary Key / Foreign Key	INT	11	NOT	FRIENDSHIP_T
childID_2	Primary Key / Foreign Key	INT	11	NOT	FRIENDSHIP_T
_timeStamp	Time Stamp	TIMESTAMP			FRIENDSHIP_T
status	Status Of FrienShip	VARCHAR	20		FRIENDSHIP_T
childID	Primary Key / Foreign Key	INT	11	NOT	PET_T_CHILD_T
petID	Primary Key / Foreign Key	INT	11	NOT	PET_T_CHILD_T
childID	Primary Key / Foreign Key	INT	11	NOT	SPORT_T_CHILD_T

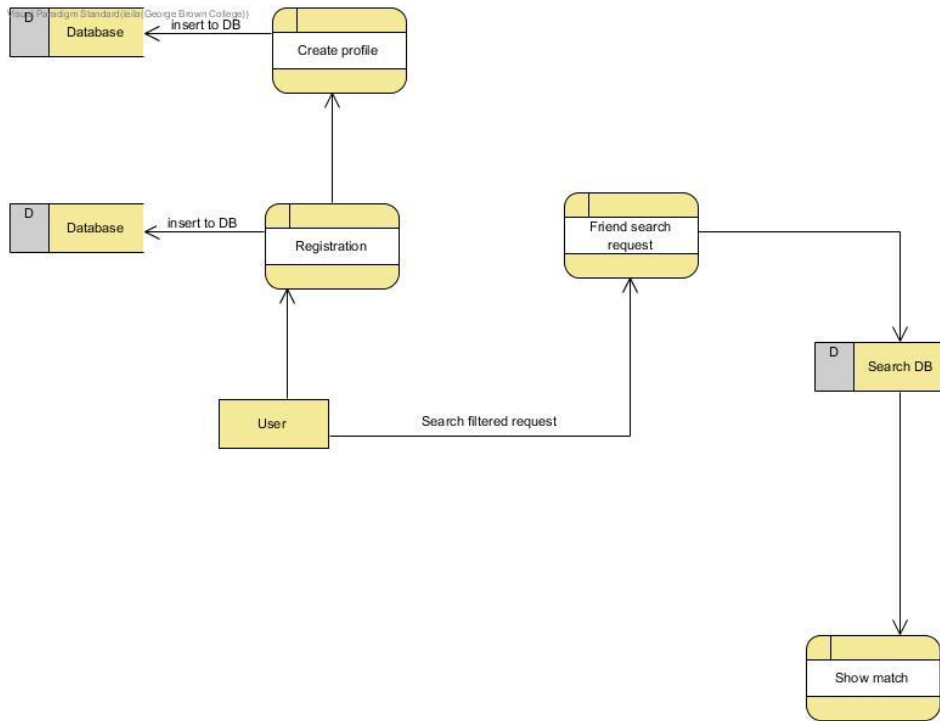
sportID	Primary Key / Foreign Key	INT	11	NOT	SPORT_T_CHILD_T
childID	Primary Key / Foreign Key	INT	11	NOT	LANGUAGE_T_CHILD_T
languageID	Primary Key / Foreign Key	INT	11	NOT	LANGUAGE_T_CHILD_T
childID	Primary Key / Foreign Key	INT	11	NOT	ALLERGY_T_CHILD_T
allergyID	Primary Key / Foreign Key	INT	11	NOT	ALLERGY_T_CHILD_T
childID	Primary Key / Foreign Key	INT	11	NOT	DISABILITY_T_CHILD_T
disabilityID	Primary Key / Foreign Key	INT	11	NOT	DISABILITY_T_CHILD_T
childID	Primary Key / Foreign Key	INT	11	NOT	FAVORIT_GAME_T_CHILD_T
favoritGameID	Primary Key / Foreign Key	INT	11	NOT	FAVORIT_GAME_T_CHILD_T
personalityID	Primary Key	INT	11	NOT	PERSONALITY_T
personality	Skill Name	VARCHAR	100	NOT	PERSONALITY_T
description	Description	VARCHAR	100		PERSONALITY_T
childID	Primary Key / Foreign Key	INT	11	NOT	PERSONALITY_T_CHILD_T
personalityID	Primary Key / Foreign Key	INT	11	NOT	PERSONALITY_T_CHILD_T

UML Class Diagram:



3.4 Process Modelling

- Data Flow Diagram



4.0 Non-Functional Requirements

- **Performance:** The friend matching process will take less than 10 seconds.
- **Functionality:** System will have a user friendly GUI (Graphical user interface) and will try to help user figure out most of the functionalities of the site at first glance. We will add brief descriptions on each page to help user navigate easier and faster.
- **Security:** Critical data saved in database, will be hashed and secured from non-authorized access. As another security measure, users will not have access to each other's profile before accepting the friendship requests. Once user finds a match, system will show a dialog box containing security agreements and warnings which user needs to read and accept before they can see the matches. All the legal and security notes has been added to terms and conditions agreement of the web application upon registration. We also are going to add google recaptcha for more advanced security.
- **Availability:** using Amazon web services and servers, the system uptime is planned to be 99.95%.
- **Portability:** The web application is compatible with all platforms such as Computer browsers, Mobile and Tablets.
- **Maintainability:** System will have Daily full backups and hourly differential backups.

5.0 Logical Database Requirements

For the database part of this application, we will be using SQLite, but at the same time, we are trying to follow the ORM approach, which is very compatible with Django framework, and has a higher data processing speed.

The database will contain 12 tables and 10 relational tables. They include data such as Parent's information, Children's information, instrument list, dances list, Games, sports, skills, pets, personalities, allergies, languages, countries and disabilities.

7.0 Approval

Project Role	Name	Signature	Date
Project Manager	Leila Jalali Abyaneh		11/03/2018
Team Member	Sogol Ganji Haghghi		11/03/2018
Team Member	Roy Artarian		11/03/2018