DESIGN DOCUMENT

KIDSPORTS

Coach Application
Registration System

by
Devin DuBose, Donald Frank, Preecha Anuvattanachai
System Design CS246 Students

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1. Intro

1.1 KidSports' And Registration Process

Definition

KidSports is a 501(c)(3) nonprofit organization that provides eight different sports programs-- year around -- for approximately 13,000 children in the Bethel, Springfield, and 4J school districts, In 2016, KidSports had 778 head coaches and 445 assistant coaches registered through their process.

Registration Process

Currently, all forms are static on the KidSports Website. Application, certificate, photo, and ID must be delivered via email, fax or in person.

The following are steps the applicant must perform during the registration process:

- **Coaches Application/Background Check Form**. Every year, complete, sign, date, submit to Sports Manager New coaches must submit valid ID
- **KidSports Coaches Pledge:** read, sign, submit to Sports Manager (yearly)
- **NFHS Concussion Course:** "Concussion in Sports - What you need to know". Complete the course and submit the certificate to Sports Manager (yearly)
- **Positive Coaching Alliance Course:** "Double-Goal Coach: Coach For Winning Lessons"(Head Coaches). Complete course, submit certificate to Sports Manager
- **KidSports Coach ID Badge.** Send individual photo (minimum 8 mega pixel resolution

The following are steps taken by an Administrator after receiving an application:

- Write on the top left corner the Initials of the Sports Manager
- Highlight 'Head Coach' or 'Assistant Coach'
- Date Stamp the top of all pages that came with the packet
- Highlight the areas that have missing paperwork
- Run the Background check via Criminal Information Services, Inc.
- Print the Summary Page to attach to Packet
- Initial and Date Stamp that the BG Approved Line
- Make a Black and White Copy for Administration
- Make a Color Copy to give to the Sports Manager
- Staple the Packet together
- Input all information into an Excel Spreadsheet:
- Enter any updates within excel and mark the changes on the Sports Manager Color Copy
- Date Stamp the 'Application Processed' Line once it's a fully completed

1.2 Proposal

Design and develop an interactive data-driven Coach Application Registration System to expedite the current processes

1.3 Scope

The scope of this project is limited to developing a web application for the Coach Application Registration System defined in the requirements gathering stage. And not including any of KidSports' other processes.

1.4 Purpose

The purpose of this document is to outline the key components of the technical design phase, and to explain the methodologies of the system. Included in the document are the following:

- Users
- Requirements
- Processes
- Application Architecture

2. Application Uses

2.1 System Users

Guest

A guest is an unregistered user who visits the application. This role will be in place to allow users to view applicant requirements and other details regarding the process of coaching registration.

Applicant

An applicant is a registered user within the system. When logged in, a user with this role will have access to coach application forms and other registration processes.

Sports Manager

A sports manager is a user that is an ‘employee’ of the KidSports organization. When logged in, a user with this role will have access to viewing coaching applications. This user will be able to filter through applications and approve valid information.

Administrator

An administrator is a user that is an ‘employee’ of the KidSports organization with permission to view sensitive information, for example a member of the human relations team. When logged in, a member with this role will have access to all privileges granted by the sports manager role. Administrators will also have permission to view background check results for applicants.

2.2 Application Uses

Some uses may be shared across multiple levels of user authorization. All user roles will have permission to access the use cases that may be operated by a role with preceding levels of authorization. The level of access granted to users from most access to least access are as follows.
(Administrator -> Sports Manager -> Applicant -> Guest)

Guest

Use Case	Description
Register user	Using full name, email, and password
View application instructions	View and/or download instructions for the coaching application process

Applicant

Use Case	Description

Login user	Using username and password
Submit application	Enter new detailed information regarding both applicant’s personal background and their interests in coaching. **See appendix B.**
Update application	Update existing information with changes to the applicant’s background and their interests in coaching.
View application	Display a list the users past submitted applications
Update account	Update contact information such as full name, phone number, email. Users will also be able to update their account password for ease of access.
Upload Image	Upload images of certifications and of the applicant’s driver’s license. The user will also be able to upload a photo for their ID badge if their application is successful.

Sports Manager

Use Case	**Description**
Login user	Using username and password
View applicants	Using name or email
View applications	Display a list of applications filtered by subjects (sport, district, age group, season)
Validate application	Mark the successful completion of application components.
Register applicant (manually)	File an application into the system on behalf of a non-electronic submission by an applicant.
Update account	Update contact information such as full name, phone number, email. Users will also be able to update their account password for ease of access.

Administrator

Use Case	**Description**
Login user	Using username and password
View applicants	Using name or email
View applications	Display a list of applications filtered by subjects (sport, district, age group, season)

Validate application	Mark the successful completion of application components.
Register applicant (manually)	File an application into the system on behalf of a non-electronic submission by an applicant.
Update account	Update contact information such as full name, phone number, email. Users will also be able to update their account password for ease of access.
View BG checks	Display a list of background checks by applicant Display a single background check by application
Validate background checks	Mark successful completion and passing status of a background check
Change permissions	Promote and demote a user’s authorization levels

For use case diagrams, see appendix B.

2.3 Requirements

Functional

Functional	Functions	System (Business Rules) Require authentication and authorization, accept user application input, validate user application input, store application data, display application data, datestamp application, retrieve application data, update application, transfer background check information to CRIS API, notify user, expire application, upload file(s), populate renewal application

Non-Functional

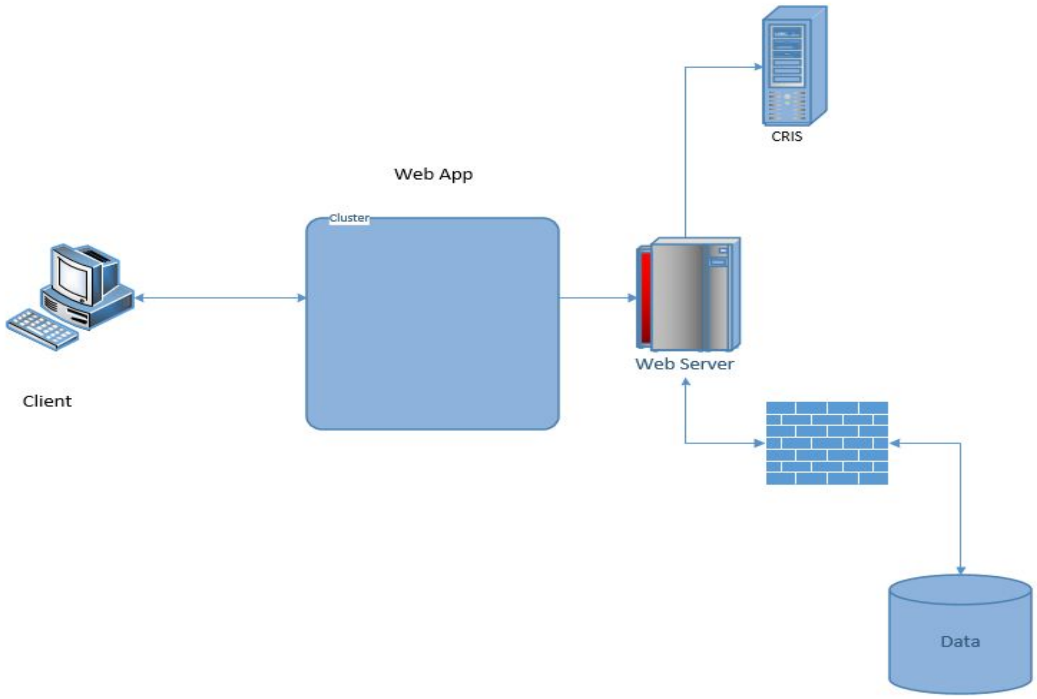
Non-functional	Usability	User interface, UX, Easy to operate
	Reliability	Low failure rate, Exception handling
	Performance	Response time, Pages load quickly
	Security	Authorization, Encrypted Identification
	+ Design constraints	EF may limit the control of DB design
	Implementation	.Net core framework may be volatile
	Interface	Accessing CRIS API for bg checks
	Physical	Server stability and strength
	Support	Installation and maintaining updates

3. Architectural Overview

3.1 Topology

This diagram below provides an illustration of the System Architecture and communication scheme in the network.

Topology Diagram



Client: The client allows users to access the application via web browser.
Web Application: The web application provides the business logic. The web application will process and validate all requests made by clients and provide a response displaying relevant information.
Web Server: The application server will host the web application.
Criminal Information Services (CRIS): CRIS provides service for the background check. Requests will be made from our web application to their API. CRIS will return a callback response to our web application when our information is processed.
Firewall: The firewall will identify and authorize requests made to the sql server, rejecting invalid requests. Only the web application server may access the data servers.
SQL Server: The data server will host the sql database.
SQL Database: The sql database will store information regarding the coaching applications, users, and background check results.

3.2 Assumptions

KidSports will pay a 3rd party provider for hosting services.
KidSports will separate the application server from the data server.
KidSports will maintain, update and backup the data regularly.
KidSports will have an active account with Criminal Information Services to use their API.
The web application will be hosted on the most recent windows OS.
A web browser will be the primary client used to access the application.

3.2.1 Constraints

Entity Framework code-first mapping may limit the control of DB design
.Net core framework may be volatile. Some features may not be supported.
Dependency on a 3rd party application for processing background checks. Accessing the CRIS API for background checks may have potential problems.
Depending on the increase in applicants and the current KidSports servers may not be strong enough to process user requests. This could potentially Lead to stability issues and crashes.

3.2.2 Exceptions

If the CRIS network is down, store the background check in a temporary state to be re-submitted later.
If the sql server is down, display a network error page. Please try again later.

4. Coach Application System Process

4.1 Registration

4.1.1 Process

- Applicant registers an account.
- Applicant logs in.
- Applicant opens new coach application.
- System populates the application with all previous existing information.
- Applicant completes the form, updating information as necessary.
- System validates the applicant's input.
- System stores the submission, and create a new background check.
- System transcribes the background check into XML and sends request to CRIS API.
- Sports manager and Administrators may now view and validate components of the pending application at any time. **For System Sequence Diagram, see appendix I.**
- CRIS provides a response call back.
- Administrator views background check results.
- Administrator validates the background check based on pass/fail.
- Applicant uploads any missing components of the application.
- Sports manager will view the new material and validate it.
- Sports manager will approve the application.

For a workflow diagram, See appendix C.

4.2 CRIS API

4.2.1 Documentation

- **testConnect** – All this does is verify that you are able to connect to the web service and that your user ID and password are valid.
- **searchName** – Submit a search request for a person's name. A result XML document will be returned highlighting the important data elements of . matching records (Name, Description, Cases, Sentences etc).
- **getResults** – Submit a request for the next set or page of records, providing the SessionID acquired from searchName.
- **getDetails** – Submit a search request for a particular record. A detail XML document will be returned which provides all data available regarding the particular case

4.2.2 Response Examples

<u>Success</u>

The response for a testConnect request would look like the following:

```
<CRISResponse>
```

```
        <RESPONSETYPE>testConnect</RESPONSETYPE>
        <STATUS>YES</STATUS>
</CRISResponse>
```

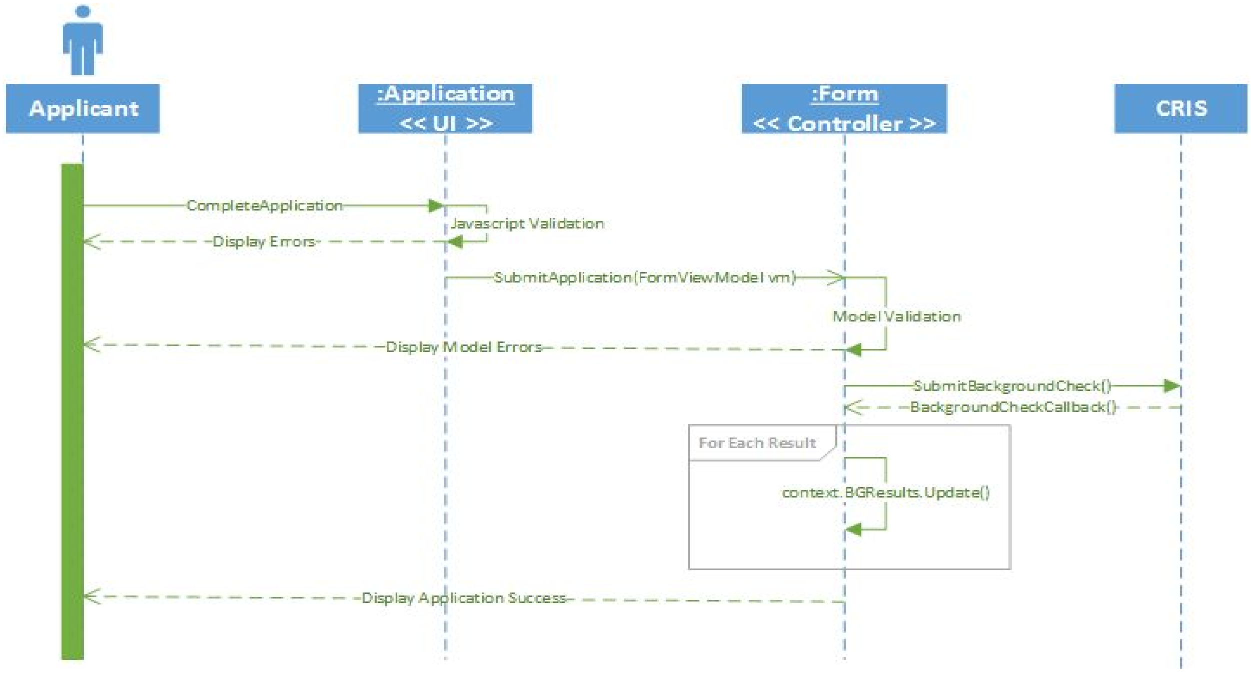
Failure

An example of an error response is as follows:

```
<CRISResponse>
        <ERROR>
                <CODE>100</CODE>
                <MESSAGE>Invalid Search Criteria</MESSAGE>
        </ERROR>
</CRISResponse>
```

For further response examples, see appendix D.

4.2.3 CRIS API Interaction SSD



5. Design Considerations

5.1 System Goals

Our goals with this system is to increase the number of coaches that register in a given year. We would also like to help expedite and ease the process of the application by removing some of the busy work that must be completed by the Sports Managers and Administrators. This will be accomplished by tasking the the system with validation restraints and data manipulation. **For a timeline, see appendix H.**

5.2 Development Methodologies

5.2.1 MVC

MVC stands for Model, View, Controller. It is a design pattern that we chose due to a few

of its key strengths. It allows for separation of concerns and parallel development. This will allow us to separate our development and assign tasks based on our specializations.

Models

Model Name	**Fields:**
Application	applicant, pledge, position, sport, district, gender, season, concussion, sportsGender, pca, bgCheck, bgcResult, photoID, processedDate
User : IdentityUser	firstName, middleName, lastName, previousStates, address, city, state, zipcode, dob, currentEmployer, jobTitle, gender
District	name, schools
School	name
<<abstract>> Course	complete, valid, completeDate, validDate
PCA : Course	pcaFile
Concussion : Course	concFile
Pledge	signature, pledgeDate
BGCheck	dateSubmitted, bgCheckResult, passed
BGCheckResult	resultSet

For a class diagram, See appendix E.

Views

View Name	**Displays:**
Register	Display username/password/email input boxes.
Login	Display username/password input boxes.
Application	Display an application form.
Coaches Pledge	Display terms of the coaches pledge, with an I agree to terms / signature requirement.
Concussion Course	Display an upload / remove (if not verified) for the concussion course certification.
PCA Course	Display an upload / remove (if not verified) for the PCA course certification.
Driver's Licence	Display an upload / remove photo option for the applicants driver's licence
Badge Photo	Display an upload / remove photo option for their coach ID badge.
Applications	Display a list of coach applications to SM's and Admins.
Applicants	Display a list of coaches to SM's and Admins.
Background Checks	Display a list of unresolved background checks.

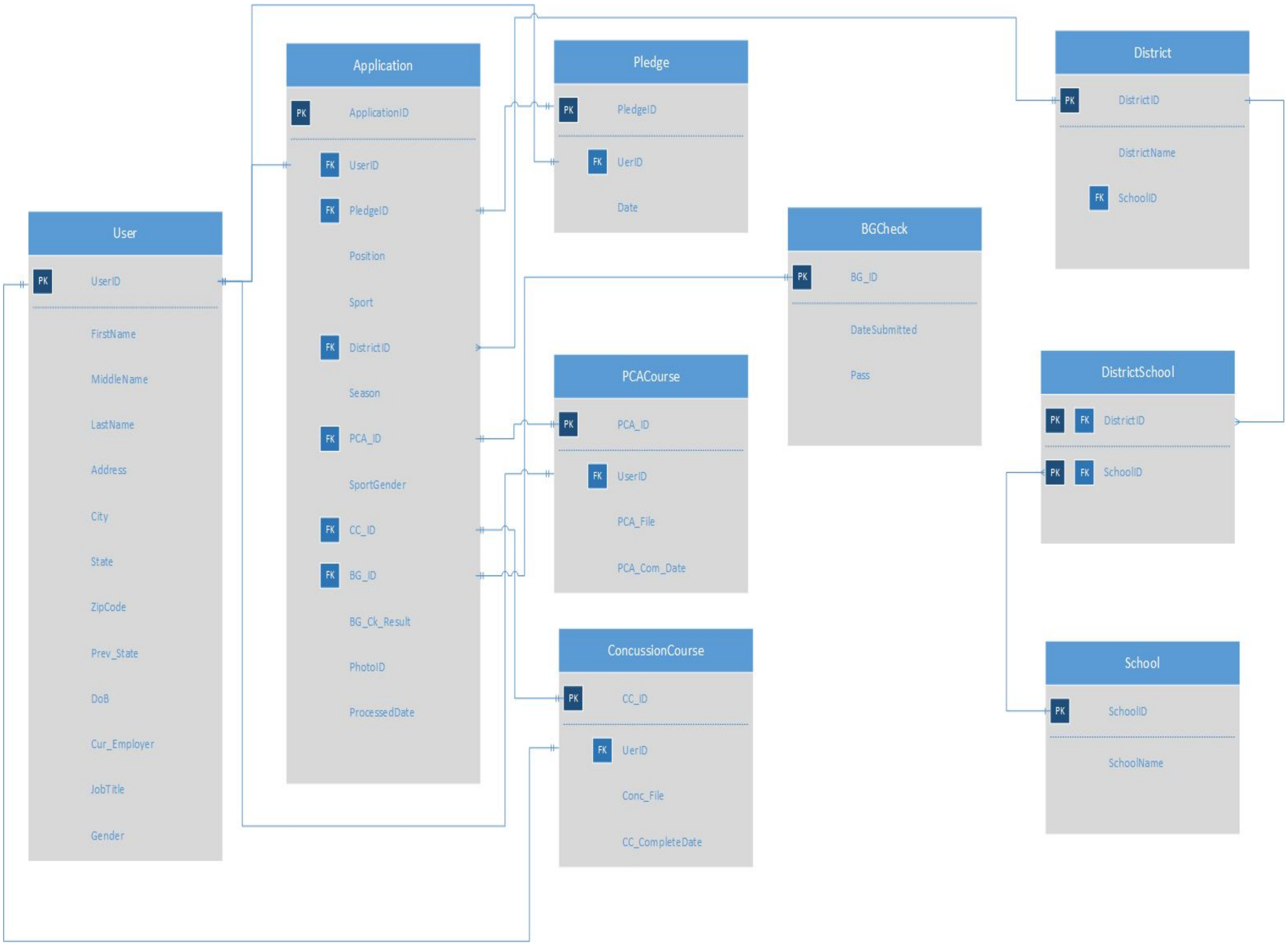
For a sitemap, see appendix F.

Controllers

Home	Index
Form	Apply, Update, View, Upload
Account	Register, Login, Profile
SMController	Applicants, Applications
AdminController	Applicants, Applications, BGCheckResults

5.2.2 Entity Framework

Entity framework will be a crucial factor in the construction of our database. We look to use a code-first design strategy in which we will build our system's architecture and use EF to map out a database structure that matches appropriately.



For a data dictionary, see appendix G.

Appendices

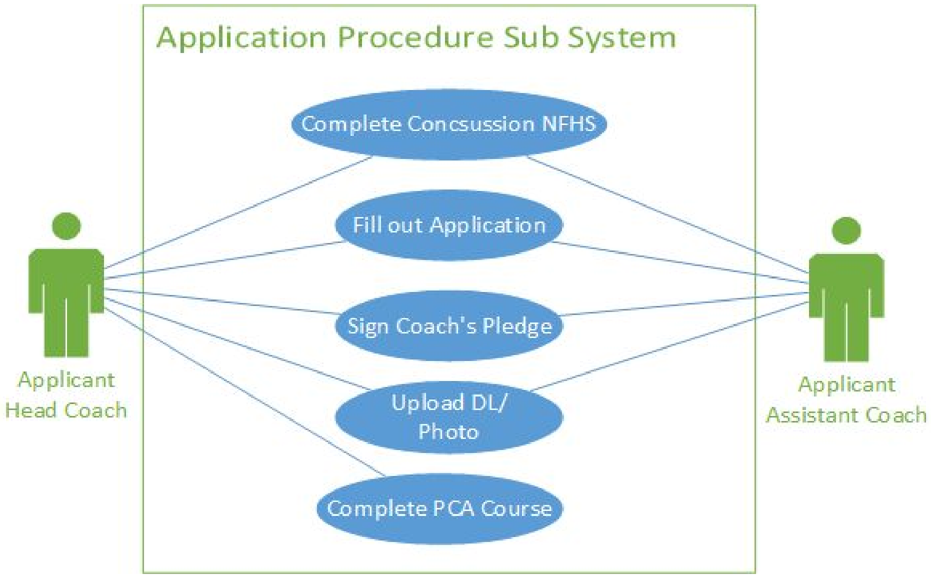
Appendix A

Glossary

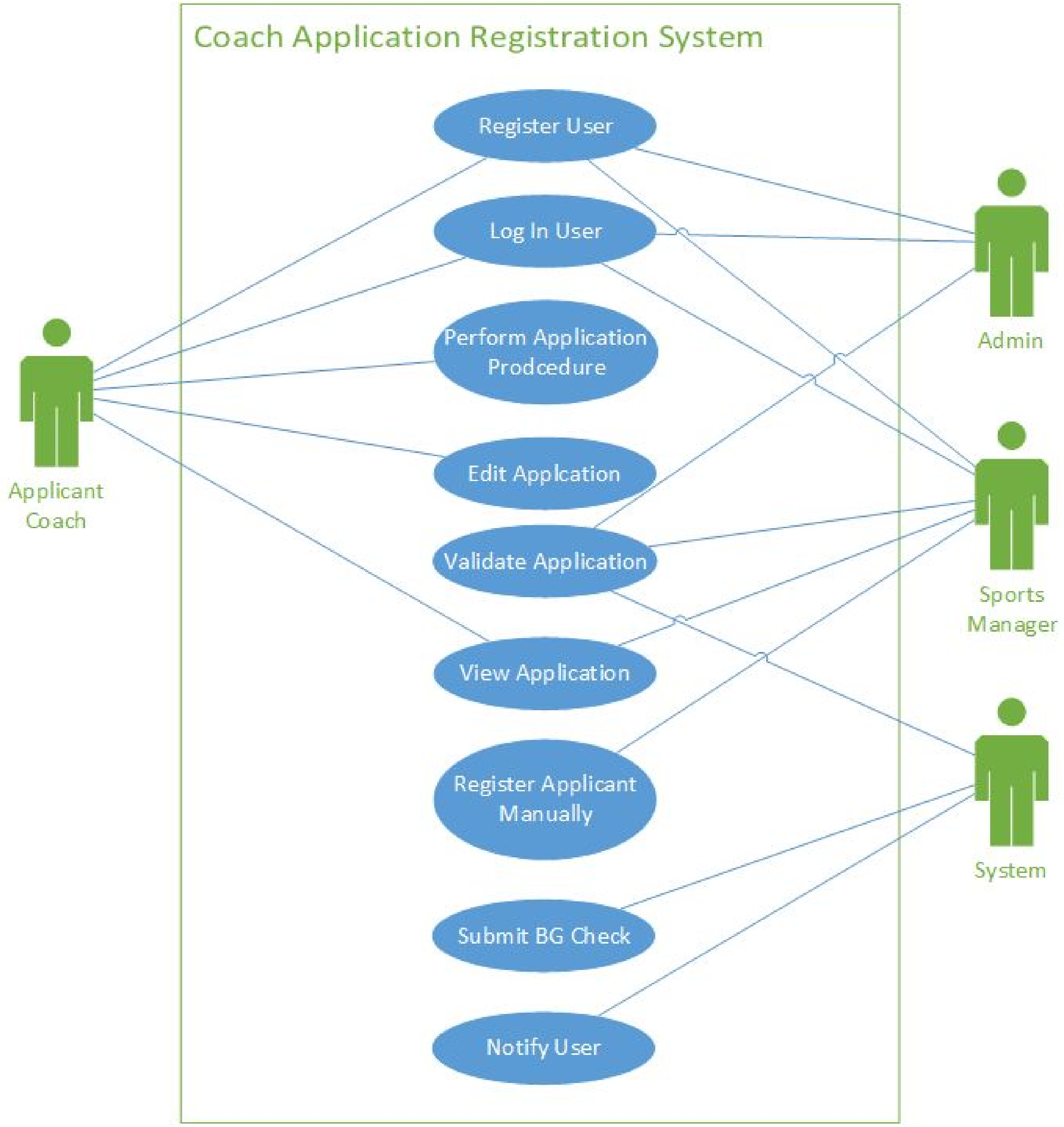
4J	Eugene School district
Admin	Administrator
API	Application Program Interface
BG	Background
CRIS	Criminal Information Services
DBMS	Database Management System
DL	Driver’s License
EF	Entity Framework
MVC	Model View Controller
NFHS	National service and administrative organization of high school athletics and fine arts programs
OS	Operating System
PCA	Positive Coaching Alliance
SSD	System Sequence Diagram
SM	Sports Manager
SQL	Structured Query Language
UI	User Interface
UX	User Experience
XML	Extensible Markup Language

Appendix B

Registration Use Case Diagram

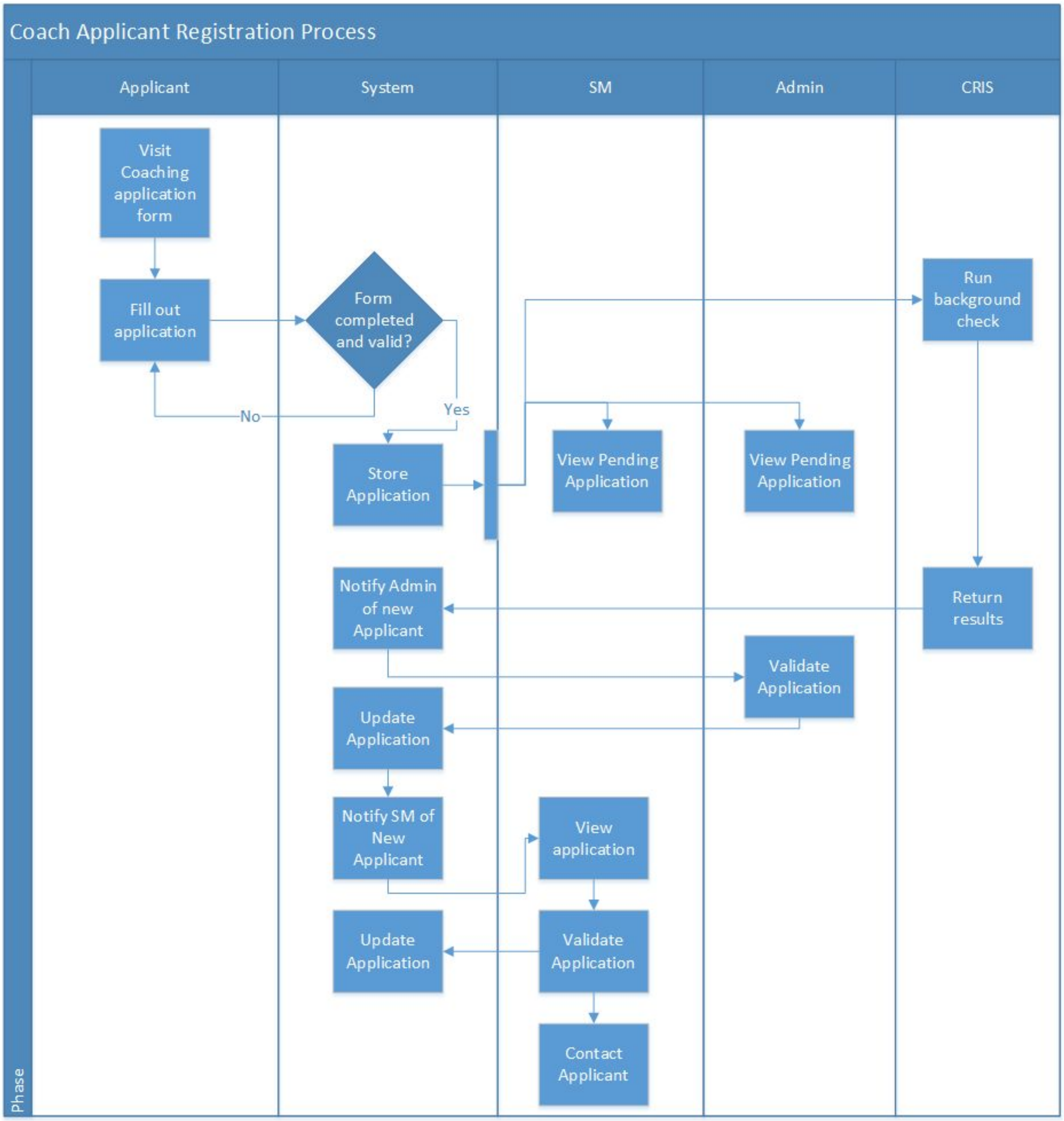


Application Use Case Diagram

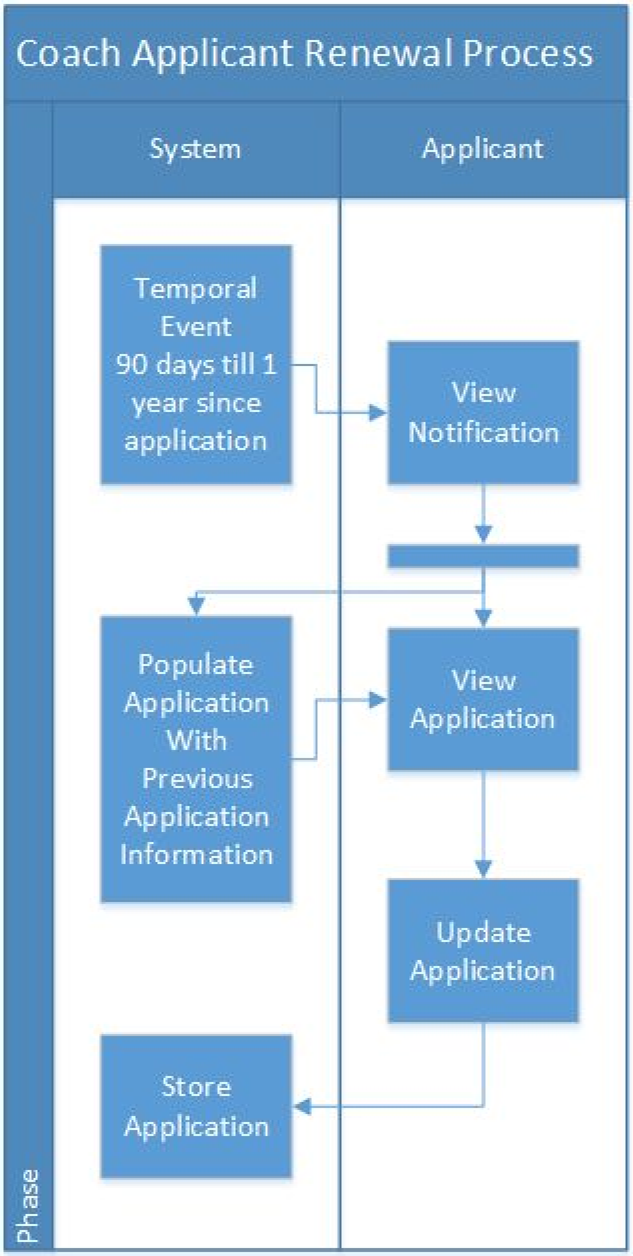


Appendix C

Workflow Diagram



Workflow Diagram - Cont.


Coach Applicant Renewal Process
System
Applicant
Phase
Temporal Event 90 days till 1 year since application
View Notification
Populate Application With Previous Application Information
View Application
Update Application
Store Application

Appendix D

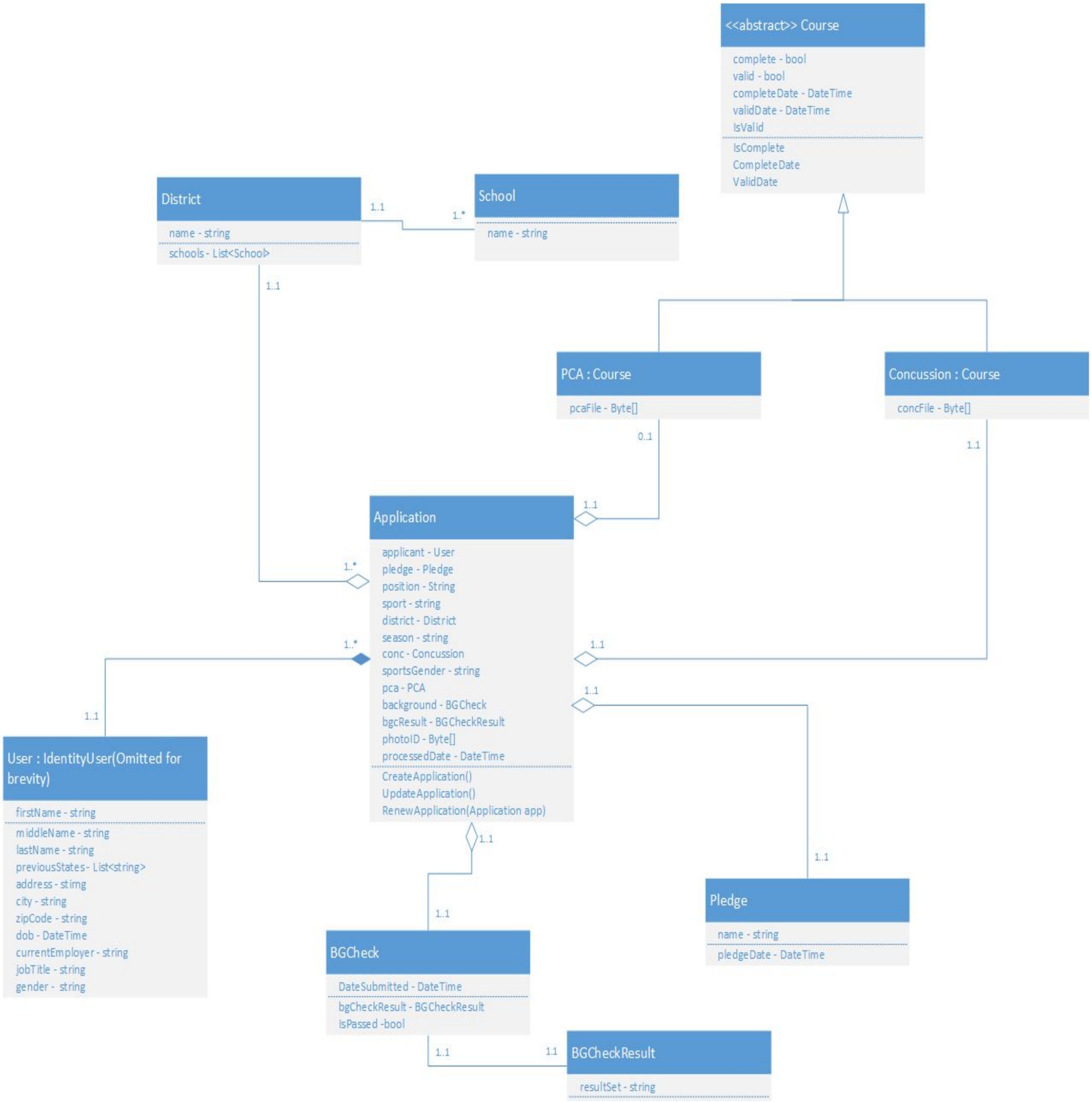
CRIS API - resultsList Response

```
<CRISResponse>
    <ResponseType>resultsList</ResponseType>
    <Matches/>
    <SessionID>rmT1uosIHLUy5idhclbKaA</SessionID>
    <RecStart>0</RecStart>
    <ClientCode/>
    <Results>
        <Case state='ID' type='DOC' rec_num="1">
        <Identification>
            <Person>
                <Name type="DEF-Record">
                    <LName>JONES</LName>
                    <FName>JAMES</FName>
                    <MName>ALAN</MName>
                </Name>
                <DOB>
                    <Year4>1925</Year4>
                    <Month>10</Month>
                    <Day>15</Day>
                </DOB>
                <Gender>MALE</Gender>
                <Race>WHITE</Race>
            </Person>
            <Person>
                <Name type="DEF-Alias">
                    <LName>JONES</LName>
                    <FName>JAMES</FName>
                    <MName>ALAN</MName>
                </Name>
                <DOB>
                    <Year4>1925</Year4>
                    <Month>10</Month>
                    <Day>15</Day>
                </DOB>
            </Person>
        </Identification>
        <CaseInformation>
        <DataType>DOC</DataType>
            <UniqueID>IDDOC*179999</UniqueID>
            <Jurisdiction>Idaho Department of Corrections</Jurisdiction>
            <StatusDate>
                <Year4>1982</Year4>
                <Month>02</Month>
                <Day>11</Day>
            </StatusDate>
            <StatusDescription>Probation</StatusDescription>
        </CaseInformation>
        <OffenseInformation>
            <OffenseIncident>
                <CaseNumber>C-98872148-A</CaseNumber>
```

```
                    <County>BANNOCK</County>
                    <Offense>
                        <Description>PETIT LARCENY</Description>
                    </Offense>
                    <OffenseType>
                        <Level>Misdemeanor</Level>
                    </OffenseType>
                    <FiledDate>
                        <Year4>1989</Year4>
                        <Month>01</Month>
                        <Day>13</Day>
                    </FiledDate>
                    <Sentence>Minimum</Sentence>
                    <SentenceLength type="text"> 1 yr 0 mon 0 days</SentenceLength>
            </OffenseIncident>
        </OffenseInformation>
        </Case>
    </Results>
</CRISResponse>
```

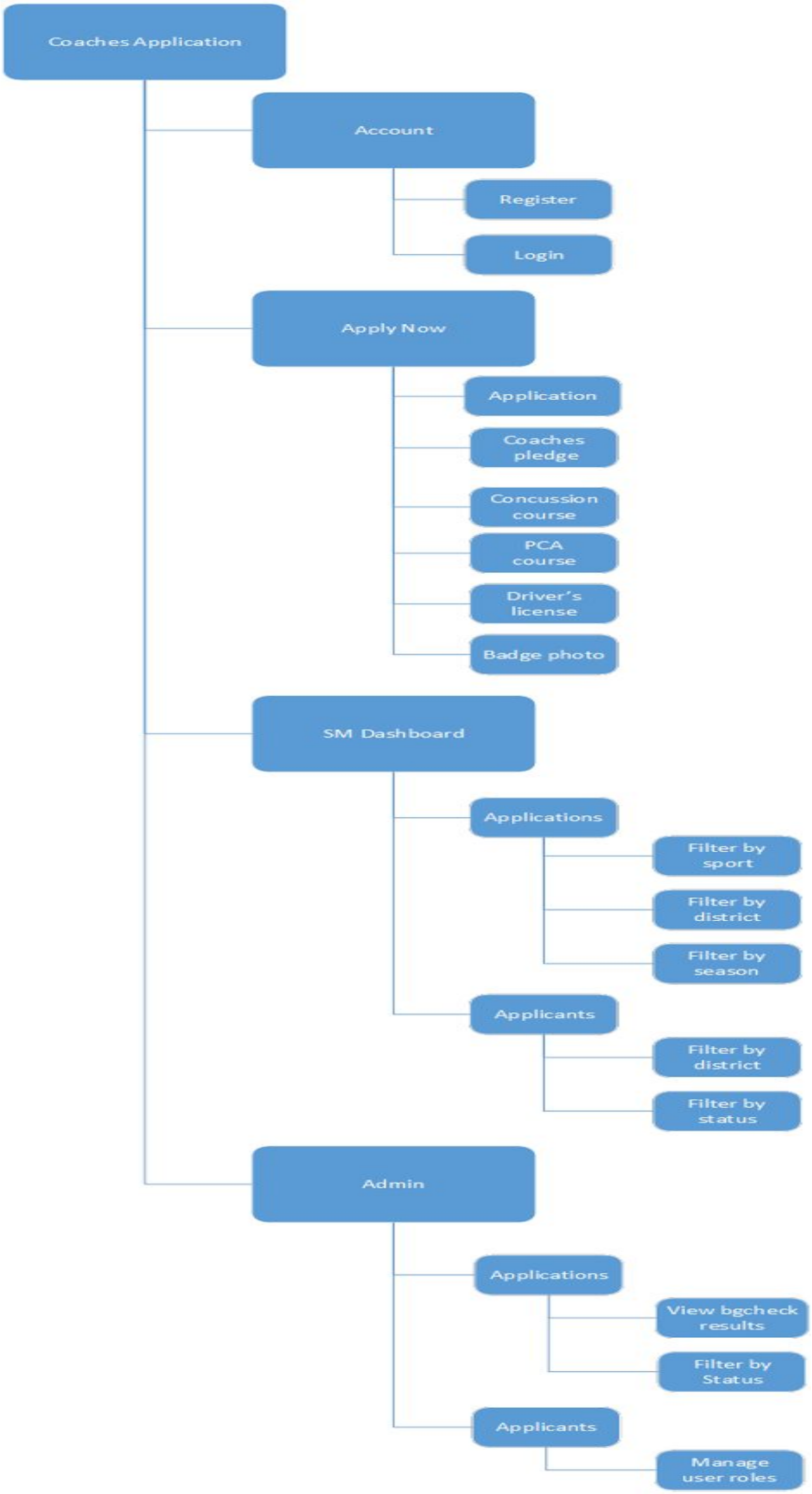
Appendix E

Class Diagram



Appendix F

Sitemap



Appendix G

Data Dictionary

Table	Key	Field Name	Data Type	Field size
Application	PK	ApplicationID	varchar	10
Application	FK	UserID	varchar	10
Application	FK	PledgeID	varchar	10
Application		Position	varchar	16
Application		Sport	varchar	16
Application	FK	DistrictID	varchar	10
Application		Season	varchar	8
Application	FK	PCA_ID	varchar	10
Application		SportGender	varchar	6
Application	FK	CC_ID	varchar	10
Application	FK	BG_ID	varchar	10
Application		BG_Ck_Result	varchar	40
Application		PhotoID	varchar	10
Application		ProcessedDate	Date	10
User	PK	UserID	varchar	10
User		FirstName	varchar	10
User		MiddleName	varchar	10
User		LastName	varchar	20
User		Address	varchar	30
User		City	varchar	20
User		State	varchar	20
User		ZipCode	varchar	12
User		Prev_State	varchar	20
User		DoB	Date	10

User		Cur_Employer	varchar	30
User		JobTilte	varchar	20
User		Gener	varchar	6
Pledge	PK	PledgeID	varchar	10
Pledge	Fk	UserID	varchar	10
Pledge		Date	varchar	10
PCACourse	PK	PCA_ID	varchar	10
PCACourse	FK	UserID	varchar	10
PCACourse		PCA_File	varchar	50
PCACourse		PCA_Com_Date	Date	10
ConcussionCourse	PK	CC_ID	varchar	10
ConcussionCourse	FK	UserID	varchar	10
ConcussionCourse		Conc_File	varchar	50
ConcussionCourse		CC_Com_Date	Date	10
BGCheck	PK	BG_ID	varchar	10
BGCheck		DateSubmited	Date	10
BGCheck		Pass	varchar	10
District	PK	DistrictID	varchar	10
District		DistrictName	varchar	20
District	FK	SchoolID	varchar	10
School	PK	SchoolID	varchar	10
School		SchoolName	varchar	20
DistrictSchool	Composite key(PK, FK)	DistrictID	varchar	10
DistrictSchool	Composite key(PK, FK)	SchoolID	varchar	10

Appendix H

Timeline

Design Phase

WEEK 1

Find Clients.

WEEK 2

Met with prospective clients

Select KidSports as our proposed client
Propose project concepts
Client / Project accepted

WEEK 3

Met with KidSports

Gather requirements
Discuss current processes
Refine scope of application

WEEK 4

Primary / Secondary Research

Course Requirements
Background check API
HR processes
SM processes

Met with kidsports

Compare our understanding of their process to their needs
Formalize requirements

WEEK 5

Design decisions

Modeling - Database and Class architecture
Diagramming
Definitions

WEEK 6

Present application system

Development Phase

WEEK 7

UI Models

Create interfaces
Create shared layouts

Create partial views

Meet with kidsports

Demonstrate application UX/UI

WEEK 8

Design user stories

Assign tasks for users

Template UI Designs

Create styles HTML templates for UI

Add bootstrap and custom css

WEEK 9

Create domain models and repositories

Setup DBcontext using EF, including Identity

Registering

Login

WEEK 10

Controllers

Dependency Injection

Unit Testing

WEEK 11

UI / View Models

Add razor within UI's

Add view models pertaining to actions

Meet (First Week of May)

WEEK 12

Implement the CRIS API

Encode strings of data to XML

Decode XML to strings

Make calls to CRIS servers

Meet (Second Week of May)

WEEK 13

Refactoring

Complete any tasks that were not successfully completed on schedule.

Refactor to OOP best practices

BETA RELEASE

Meet (Third Week of May)

WEEK 14

User testing

Test all functionality.

Attempt to exploit the website.
Look for distorted UI.

WEEK 15

Bug Fixing

Correct any UI mistakes.
Improve UX.
Patch exploits.

WEEK 16

Meet (First Week of June)

Meet with kidsports

Run through the application
Demonstrate UI and functionality
Implement UI suggestions

WEEK 17

Refactoring

Fix any last minute bugs
Implement any content that was not finished on schedule

WEEK 18

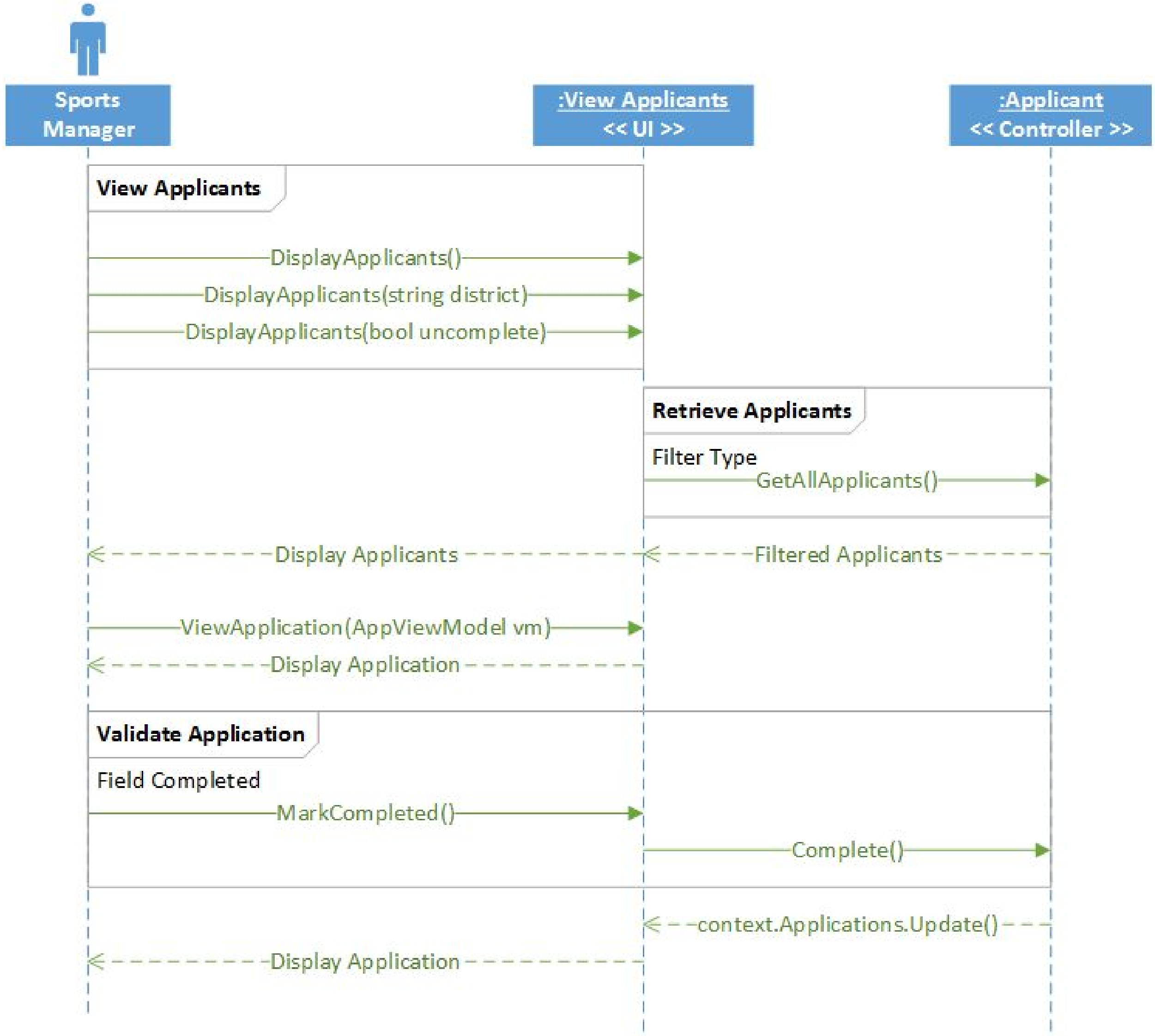
Present production release

Meet (Second Week of June)

PRODUCTION RELEASE

Appendix I

System Sequence Diagram


Sports Manager
:View Applicants
<< UI >>
:Applicant
<< Controller >>
View Applicants
DisplayApplicants()
DisplayApplicants(string district)
DisplayApplicants(bool uncomplete)
Retrieve Applicants
Filter Type
GetAllApplicants()
Display Applicants
Filtered Applicants
ViewApplication(AppViewModel vm)
Display Application
Validate Application
Field Completed
MarkCompleted()
Complete()
context.Applications.Update()
Display Application