

## Sport Prediction System

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# Chapter 1

## Hierarchical Index

### 1.1 Class Hierarchy

This inheritance list is sorted roughly, but not completely, alphabetically:

CSVReader< M > . . . . .	5
CSVWriter< M > . . . . .	6
EmailService . . . . .	6
Match . . . . .	8
FootballMatch . . . . .	7
Member . . . . .	9
Prediction . . . . .	11
FootballPrediction . . . . .	8
PredictionGame . . . . .	11
Schedule . . . . .	13
Score . . . . .	14



## Chapter 2

# Class Index

### 2.1 Class List

Here are the classes, structs, unions and interfaces with brief descriptions:

<a href="#">CSVReader&lt; M &gt;</a>	5
<a href="#">CSVWriter&lt; M &gt;</a>	6
<a href="#">EmailService</a>	
Provides functionality to send emails using SMTP	6
<a href="#">FootballMatch</a>	7
<a href="#">FootballPrediction</a>	8
<a href="#">Match</a>	
Abstract match class to set a frame for sport-specific kinds of matches	8
<a href="#">Member</a>	
Represents a member participating in the Sport <a href="#">Prediction</a> System (SPS)	9
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<a href="#">PredictionGame</a>	
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<a href="#">Schedule</a>	
Generic class <a href="#">Schedule</a> which represents a tournament	13
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## Chapter 3

# Class Documentation

### 3.1 CSVReader< M > Class Template Reference

#### Static Public Member Functions

- static string[] [GetMatchDataFromCsvFile](#) (string PathToMatchDataCsvFile, int line\_number)  
*Reads the match data from a CSV file.*
- static List< [Match](#) > [GetScheduleFromCsvFile](#) (string PathToCsvFile, SportsTypes sport\_type)

#### 3.1.1 Member Function Documentation

##### 3.1.1.1 GetMatchDataFromCsvFile()

```
static string [] CSVReader< M >.GetMatchDataFromCsvFile (  
    string PathToMatchDataCsvFile,  
    int line_number ) [inline], [static]
```

Reads the match data from a CSV file.

#### Parameters

<i>PathToMatchDataCsvFile</i>	The path to the CSV file containing match data.
<i>MatchID</i>	The unique identifier of the match.

#### Returns

An array of strings containing the match data.

The documentation for this class was generated from the following file:

- src/ClassLib/CSVReader.cs

## 3.2 CSVWriter< M > Class Template Reference

### Static Public Member Functions

- static void **UpdateSchedule** (string PathToCsvFile, List< [Match](#) > schedule)
- static void **DeleteScheduleFile** (string PathToCsvFile)

The documentation for this class was generated from the following file:

- src/ClassLib/CSVWriter.cs

## 3.3 EmailService Class Reference

Provides functionality to send emails using SMTP.

### Public Member Functions

- [EmailService](#) ()  
*Initializes a new instance of the [EmailService](#) class.*
- void [SendEmail](#) (string Recipient, string Sender, string Subject, string Content)  
*Sends an email.*

### 3.3.1 Detailed Description

Provides functionality to send emails using SMTP.

### 3.3.2 Constructor & Destructor Documentation

#### 3.3.2.1 EmailService()

```
EmailService.EmailService ( ) [inline]
```

Initializes a new instance of the [EmailService](#) class.

#### Parameters

<i>smtpServer</i>	The SMTP server address.
<i>smtpPort</i>	The SMTP server port.
<i>username</i>	The username for SMTP authentication.
<i>password</i>	The password for SMTP authentication.

### 3.3.3 Member Function Documentation

#### 3.3.3.1 SendEmail()

```
void EmailService.SendEmail (
    string Recipient,
    string Sender,
    string Subject,
    string Content ) [inline]
```

Sends an email.

##### Parameters

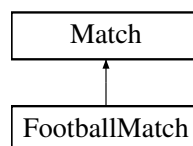
<i>recipient</i>	The recipient's email address.
<i>subject</i>	The subject of the email.
<i>content</i>	The content of the email.

The documentation for this class was generated from the following file:

- src/ClassLib/EmailService.cs

## 3.4 FootballMatch Class Reference

Inheritance diagram for FootballMatch:



### Public Member Functions

- **FootballMatch** (string PathToMatchDataCsvFile, int line\_number)
- override string **ToString** ()

### Properties

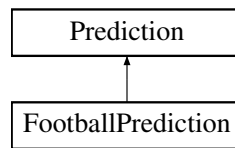
- string? **HomeTeam** [get]
- string? **AwayTeam** [get]
- byte? **ResultHomeTeamPenalties** [get]
- byte? **ResultAwayTeamPenalties** [get]

The documentation for this class was generated from the following file:

- src/ClassLib/FootballMatch.cs

## 3.5 FootballPrediction Class Reference

Inheritance diagram for FootballPrediction:



### Public Member Functions

- **FootballPrediction** (uint MemberID, [FootballMatch](#) football\_match, DateTime predictionDate, byte prediction\_home, byte prediction\_away)
- void **ChangePrediction** (byte? NewPredictionHome, byte? NewPredictionAway)
- override string **ToString** ()

### Additional Inherited Members

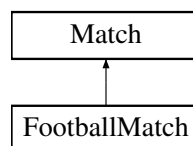
The documentation for this class was generated from the following file:

- src/ClassLib/FootballPrediction.cs

## 3.6 Match Class Reference

Abstract match class to set a frame for sport-specific kinds of matches.

Inheritance diagram for Match:



### Public Member Functions

- [Match](#) (string PathToMatchDataCsvFile, int line\_number)  
*Constructor to initialize a match object.*
- override int **GetHashCode** ()

## Properties

- uint [MatchID](#) [get]  
*Unique identifier for the match.*
- DateTime [MatchDate](#) [get]  
*Date and time when the match takes place.*
- byte? [ResultTeam1](#) [get]  
*Result of team 1 in the match.*
- byte? [ResultTeam2](#) [get]  
*Result of team 2 in the match.*
- string[] [MatchArray](#) [get]

### 3.6.1 Detailed Description

Abstract match class to set a frame for sport-specific kinds of matches.

This class provides the basic structure for any kind of sports match, including common properties like MatchID, MatchDate, and Results.

### 3.6.2 Constructor & Destructor Documentation

#### 3.6.2.1 Match()

```
Match.Match (
    string PathToMatchDataCsvFile,
    int line_number ) [inline]
```

Constructor to initialize a match object.

#### Parameters

<i>PathToMatchDataCsvFile</i>	The path to the CSV file containing match data.
-------------------------------	---

The documentation for this class was generated from the following file:

- src/ClassLib/Match.cs

## 3.7 Member Class Reference

Represents a member participating in the Sport [Prediction](#) System (SPS).

## Public Member Functions

- [Member](#) (string forename, string surname, string emailaddress)  
*Initializes a new instance of the [Member](#) class.*
- override int **GetHashCode** ()
- void [AddParticipatingSchedule](#) ([Schedule](#) schedule)  
*Adds a schedule to the member's list of participating schedules.*
- void [RemoveParticipatingSchedule](#) (ScheduleTypes schedule\_type)  
*Removes a schedule from the member's list of participating schedules.*
- void [AddPredictionToDo](#) ()  
*Adds a prediction to the member's list of predictions to do.*
- void [RemovePredictionToDo](#) (uint MatchID)  
*Removes a prediction from the member's list of predictions to do.*
- [Prediction SearchPredictionDone](#) (uint PredictionID)  
*Searches for a specific prediction in the member's list.*
- void **AddPrediction** ()

## Protected Attributes

- List< [Score](#) > **Scores**

## Properties

- uint [MemberID](#) [get]  
*Gets the unique ID of the member.*
- string? **forename** [get, set]
- string? **surname** [get, set]
- string **EmailAddress** [get, set]
- string **password** [get, set]
- List< [Schedule](#) > **ParticipatingSchedules** [get]
- List< [Match](#) > **PredictionsToDo** [get]
- List< [Prediction](#) > **PredictionsDone** [get]

### 3.7.1 Detailed Description

Represents a member participating in the Sport [Prediction](#) System (SPS).

### 3.7.2 Member Function Documentation

### 3.7.2.1 SearchPredictionDone()

```
Prediction Member.SearchPredictionDone (
    uint PredictionID ) [inline]
```

Searches for a specific prediction in the member's list.

#### Returns

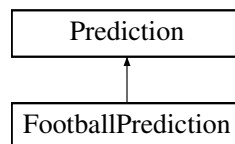
The prediction if found, otherwise null.

The documentation for this class was generated from the following file:

- src/ClassLib/Member.cs

## 3.8 Prediction Class Reference

Inheritance diagram for Prediction:



### Public Member Functions

- **Prediction** (uint member\_id, Match predicted\_match, DateTime predictionDate)
- bool **ValidatePrediction** ()
- override int **GetHashCode** ()
- override string **ToString** ()

### Properties

- uint **PredictionID** [get]
- uint **MemberID** [get]
- Match **PredictedMatch** [get]
- DateTime **PredictionDate** [get, set]

The documentation for this class was generated from the following file:

- src/ClassLib/Prediction.cs

## 3.9 PredictionGame Class Reference

Represents a prediction game in the Sport Prediction System (SPS).

## Public Member Functions

- [PredictionGame](#) ([EmailService](#) emailService)  
*Initializes a new instance of the [PredictionGame](#) class.*
- void [Register](#) ([Member](#) member)  
*Registers a new member to the prediction game.*
- void [Unsubscribe](#) (int MemberID)  
*Unsubscribes a member from the prediction game.*
- void [SendDailyEmail](#) ()  
*Sends a daily email to all members with the matches that need to be predicted.*

## Properties

- uint [PredictionGameID](#) [get]  
*Gets the unique ID of the prediction game.*
- List< [ScheduleTypes](#) > **ScheduleTypes** [get]

### 3.9.1 Detailed Description

Represents a prediction game in the Sport [Prediction](#) System (SPS).

### 3.9.2 Constructor & Destructor Documentation

#### 3.9.2.1 PredictionGame()

```
PredictionGame.PredictionGame (  
    EmailService emailService ) [inline]
```

Initializes a new instance of the [PredictionGame](#) class.

### 3.9.3 Member Function Documentation

#### 3.9.3.1 Register()

```
void PredictionGame.Register (  
    Member member ) [inline]
```

Registers a new member to the prediction game.



### 3.9.3.2 SendDailyEmail()

```
void PredictionGame.SendDailyEmail ( ) [inline]
```

Sends a daily email to all members with the matches that need to be predicted.

### 3.9.3.3 Unsubscribe()

```
void PredictionGame.Unsubscribe (
    int MemberID ) [inline]
```

Unsubscribes a member from the prediction game.

## 3.9.4 Property Documentation

### 3.9.4.1 PredictionGameID

```
uint PredictionGame.PredictionGameID [get]
```

Gets the unique ID of the prediction game.

The documentation for this class was generated from the following file:

- src/ClassLib/PredictionGame.cs

## 3.10 Schedule Class Reference

Generic class [Schedule](#) which represents a tournament.

### Public Member Functions

- **Schedule** (string PathToCsvFile, SportsTypes sport\_type, ScheduleTypes schedule\_type)
- List< [Match](#) > **GetMatchesFromCsvFile** (string PathToCsvFile, SportsTypes sport\_type)
- List< [Match](#) > **GetMatchesOnDay** ()

### Properties

- ScheduleTypes **ScheduleID** [get]
- List< [Match](#) > **Matches** [get]

### 3.10.1 Detailed Description

Generic class [Schedule](#) which represents a tournament.

It contains a list of all the matches which take place during the tournament.

Added to that it also contains a list of all the matches on the specific day of the tournament.

The documentation for this class was generated from the following file:

- `src/ClassLib/Schedule.cs`

## 3.11 Score Class Reference

### Public Member Functions

- **Score** (ScheduleTypes PredictedSchedule)
- **int CalculateScore** (ScheduleTypes PredictedSchedule, [Prediction](#) prediction)

### Properties

- **uint ScoreID** [`get`]

The documentation for this class was generated from the following file:

- `src/ClassLib/Score.cs`