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:

Chapter 2

Class Index

2.1 Class List

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

Chapter 3

Class Documentation

3.1 CSVReader< M > Class Template Reference

Static Public Member Functions

- static void **SetMatchFactory** (IMatchFactory< M > match_factory)
- static string[ ] GetMatchDataFromCsvFile (string PathToMatchDataCsvFile, int line_number)

  Reads the match data from a CSV file.
- static List< M > **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

PathToMatchDataCsvFile	The path to the CSV file containing match data.
MatchID	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, P > Class Template Reference

Static Public Member Functions

- static void **UpdateSchedule** (string PathToCsvFile, List< M > schedule)
- static void **DeleteFile** (string PathToCsvFile)
- static void **WriteMemberData** (string PathToCsvFile, List< Member< P, M >> members)
- static void **TrackScoreData** (string PathToCsvFile, PredictionGame predictionGame)

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 Template, Dictionary< string, string > placeholders)

  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

smtpServer	The SMTP server address.
smtpPort	The SMTP server port.
username	The username for SMTP authentication.
password	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 Template,
            Dictionary< string, string > placeholders )  [inline]
```

Sends an email.

Parameters

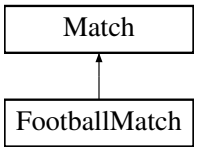
recipient	The recipient's email address.
subject	The subject of the email.
content	The content of the email.

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 ()

  Parameter free constructor to use generic type M in CSVReader
- **FootballMatch** (string PathToMatchDataCsvFile, int line_number, SportsTypes sport_type)
- override string **ToString** ()

Properties

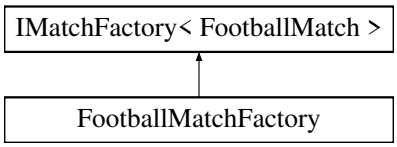
- string? **HomeTeam** `[get]`
- string? **AwayTeam** `[get]`
- byte? **ResultHomeTeamPenalties** `[get]`
- byte? **ResultAwayTeamPenalties** `[get]`

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

- src/ClassLib/FootballMatch.cs

3.5 FootballMatchFactory Class Reference

Inheritance diagram for FootballMatchFactory:



Public Member Functions

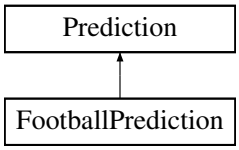
- FootballMatch **CreateMatch** (string PathToMatchDataCsvFile, int line_number, SportsTypes sport_type)

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

- src/ClassLib/MatchFactory.cs

3.6 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** ()

Properties

- byte **PredictionHome** `[get, set]`
- byte **PredictionAway** `[get, set]`

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

- src/ClassLib/FootballPrediction.cs

3.7 IMatchFactory< M > Interface Template Reference

Public Member Functions

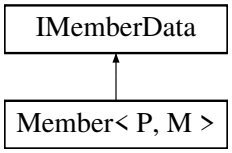
- M **CreateMatch** (string PathToMatchDataCsvFile, int line_number, SportsTypes sport_type)

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

- src/ClassLib/MatchFactory.cs

3.8 IMemberData Interface Reference

Inheritance diagram for IMemberData:



Public Member Functions

- string **GetForename** ()
- string **GetEmailAddress** ()
- List< Match > **GetPredictionsToDo** ()
- List< Prediction > **GetArchivedPredictions** ()
- List< Score > **GetScores** ()

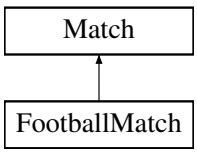
The documentation for this interface was generated from the following file:

- src/ClassLib/Member.cs

3.9 Match Class Reference

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

Inheritance diagram for Match:



Public Member Functions

- override int **GetHashCode** ()
- bool **Team1Won** ()
- bool **Team2Won** ()
- bool **Tie** ()

Properties

- uint MatchID `[get, protected set]`

  Unique identifier for the match.
- DateTime MatchDate `[get, protected set]`

  Date and time when the match takes place.
- byte? ResultTeam1 `[get, protected set]`

  Result of team 1 in the match.
- byte? ResultTeam2 `[get, protected set]`

  Result of team 2 in the match.
- SportsTypes **SportsType** `[get, protected set]`
- string[ ] **MatchArray** `[get, protected set]`

3.9.1 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.

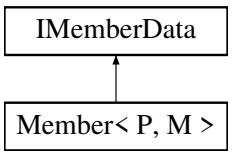
The documentation for this class was generated from the following file:

- src/ClassLib/Match.cs

3.10 Member< P, M > Class Template Reference

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

Inheritance diagram for Member< P, M >:



Public Member Functions

- string GetForename ()

  Retrieves the forename of the member.
- string GetEmailAddress ()

  Retrieves the email address of the member.
- List< Match > GetPredictionsToDo ()

  Retrieves a copy of the list of matches that need to be predicted.
- List< Prediction > GetArchivedPredictions ()

  Retrieves a copy of the list of archived predictions.
- List< Score > GetScores ()

  Retrieves a copy of the scores list.
- Member (string forename, string surname, string emailaddress, string password)

  Initializes a new instance of the Member class.
- override int **GetHashCode** ()
- void AddParticipatingSchedule (Schedule< M > schedule, ScheduleTypes schedule_type)

  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 match from the member's list of PredictionsToDo.
- void ConvertPredictionsDone (uint MatchID, byte prediction_home, byte prediction_away)

  If user has predicted a certain match (specified by MatchID), a new prediction will be created (Prediction ctor call) and will be added to the PredictionsDone-list.
- Prediction SearchPredictionDone (uint PredictionID)

  Searches for a specific prediction in the member's list.
- void RemovePredictionsDone (uint PredictionID)

  Removes a prediction from the member's list of PredictionsDone.
- void **CalculateScores** ()
- override string **ToString** ()

Protected Attributes

- List< Score > Scores

  List of Scores.

Properties

- uint MemberID `[get]`

  Gets the unique ID of the member.
- string? **forename** `[get, set]`
- string? **surname** `[get, set]`
- string **EmailAddress** `[get]`
- string **Password** `[get]`
- List< Schedule< M > > ParticipatingSchedules `[get]`

  List of Schedules the member chose to participate predicting.
- List< M > PredictionsToDo `[get, set]`

  List of Matches, which need to be predicted on the specific day.
- List< P > PredictionsDone `[get]`

  List, which contains all Predictions where the match is already predicted, but a score was not calculated yet.
- List< P > ArchivedPredictions `[get]`

  List, which contains all Predictions where no score must be calculated anymore.

3.10.1 Detailed Description

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

Type Constraints

P **:** ***Prediction***

M **:** ***Match***

3.10.2 Member Function Documentation

3.10.2.1 SearchPredictionDone()

```
Prediction Member< P, M >.SearchPredictionDone (
            uint PredictionID )  [inline]
```

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

Returns

The prediction if found, otherwise null.

3.10.3 Member Data Documentation

3.10.3.1 Scores

```
List<Score> Member< P, M >.Scores  [protected]
```

List of Scores.

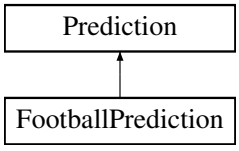
There is exactly one score for every schedule the member predicts.

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

- src/ClassLib/Member.cs

3.11 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

3.12 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.
- override int GetHashCode ()

  Get a unique Hashcode -> PredictionGameIDCounter necassary for generation.
- void Register (Member< Prediction, Match > 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< Member< Prediction, Match > > **Members** `[get, set]`
- List< ScheduleTypes > **ScheduleTypesList** `[get]`

3.12.1 Detailed Description

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

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

- src/ClassLib/PredictionGame.cs

3.13 Schedule< M > Class Template Reference

Generic class Schedule which represents a tournament.

Public Member Functions

- **Schedule** (string PathToCsvFile, SportsTypes sport_type, ScheduleTypes schedule_type)
- List< FootballMatch > **GetFootballScheduleFromCsvFile** (string PathToCsvFile, SportsTypes sport_type)
- List< M > **GetMatchesOnDay** ()

Properties

- ScheduleTypes **ScheduleID** `[get]`
- List< M >? **Matches** `[get]`

3.13.1 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.

Type Constraints

M **:** ***Match***

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

- src/ClassLib/Schedule.cs

3.14 Score Class Reference

Public Member Functions

- **Score** (ScheduleTypes predicted_schedule)
- void **IncrementAmountOfPoints** (uint points)
- uint **CalculateFootballScore** (FootballPrediction prediction)
- override string **ToString** ()

Properties

- ScheduleTypes **ScoreID** `[get]`
- uint **AmountOfPoints** `[get, set]`

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

- src/ClassLib/Score.cs