INGI2255 : A tennis tournament management system for ASMAE ASBL

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Contents

1 General description

This document describes the the actual state of the software and the requirements of a tennis tournament management software for the non-profit organisation ASMAE.

The tournament takes place each year in September. It happens during a week-end, in general at the end of the second week of September. There are only double matches. On Saturday the mixed doubles take place and on Sunday the same sex tournament takes place. If there are no issues with the weather, the matches are played on privately owned courts. All the profits are given to Asmae ASBL to fund a project in Africa (2014 in Senegal, 2015 in Togo). For more details on the different projects supported and organised by ASMAE visit: www.asmae.org. The tournament gathers a bit less than a thousand players in total each year playing on 80 privately owned courts.

The tournaments taking place on Saturday and Sunday are completely independent. Players that played on Saturday can compete on Sunday. Each day is split in two types of tournaments. In the morning, a group tournament takes place with all the players and the best two pairs of each group qualify for the afternoon. In the afternoon a knock-out tournament takes place where the winner goes to the next round and the loser stops the competition. The application to be designed will have to handle the registration of the players and the court owners but also help us manage the different phases of the tournament.

1.1 Timeline of the tournament

Each year in July invitations are sent to the players and court owners via a brochure sent by postal mail. This means of communication may seem archaic but it is a good diffusion support for sponsors. Responses are collected at a specific web page for the players. For the owners, multiple possibilities exist to collect the answers: e-mail, paper mail, fax, phone, link to a google form. At the end of August an e-mail is sent to the owners who have not responded before calling them personally if no answer is given. A week before the beginning of the tournament the staff responsible for organizing the tournament meets to treat all the player registrations and organize the tournament. Multiple checks are performed to check if every aspect of the tournament is correct.

On Thursday evening before the tournament registrations are closed and the generation of the groups begins. An e-mail is sent to the players to indicate where they are playing and if they have to go to the headquarters (HQ) before playing. This e-mail is sent to the players either on Friday or Saturday depending if they are playing Saturday or Sunday.

The development of the tournament is nearly identical on Saturday and Sunday, only the type of matches changes (same or different sex). From a management point of view it is perfectly identical (there are more players on Sunday).

The evening before the tournament starts (Friday) the court owners hang in front of their homes/court a wooden yellow board showing their court number, making the court easier to find (Figure 1).

On the morning of the tournament, most of the players head to the court where they

Figure 1: An example of a "Panneau Terrain" or court board

have to play their group matches. Only players who have payment issues or who are group leaders pass through HQ. Once the tournament fee paid, the players with payment issues head to their court. The group leaders get what we call a "Tableau de poule" (Figure 2). This board contains informations about the players and the matches they have to play as well as logo space for the sponsors. An example of the information given to the players is given in *feuilleDePoule.pdf*

Figure 2: An example of a "Tableau de poule" or group board

At the beginning of the afternoon (13h on Saturday and 13h30 on Sunday) players come back to the HQ and hand on their group board to the staff. Results are encoded in the software. During the the players noon break, based on the morning results the elimination tournament is designed where players are assigned a series of matches and a court for each one of them. This time each match is played on a different court. A sheet is given to the players to indicate them where they have to go if they win. The staff is

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not needed any more at this point but we require the players to send us information on the evolution of their results by SMS. An award ceremony for the Saturday winners is held on Sunday noon. The awards to the Sunday laureates are given directly on their final courts.

During the Sunday afternoon when the matches are slowly ending a special team is dedicated to visit each owner to thank them for lending their court.

2 Requirements for the new program

The requirements for the new program are described with what is called the MoSCoW method which is a prioritization technique. The technique divides the requirements in four categories : Must have, Should have, Could have and Would like. Each of the following subsections will describe the content of the different categories.

2.1 Must Have

The elements described here are required as a minimal basis for the program.

2.1.1 Players registration

Players should be able to register via a web interface. During this registration they will have to indicate their tennis partner, their personal information, be able to choose optional extras (ask for a BBQ for example) and their payment method. The staff should be able to encode and edit pairs by hand too. The required personal information can be found in figure 3. The number and the type of optional extras should be editable by the staff in an other control panel with a corresponding price. The method of payment has to be chosen (Paypal, credit or debit card, bank transfer or cash). Basic checks are required so that the players fully complete the form. A last field is used for the wishes of the players where they do not have any constraints. This field is used in general if the pair wishes to play with another pair or on a specific court. When created a pair is assigned with an identification number and a confirmation mail is sent to the players of the pair.

On the staff side, a list of the registration has to be displayed with links to find the detailed information about the clicked pair. This detailed information should also be accessed with the identification number of the pair or incomplete information about players (part of the name for example).

All the addresses (mail and postal) of players who played in previous tournaments should be available making it possible to send them the invitation. Multiple players can live in the same house meaning that only one invitation has to be sent for multiple players.

2.1.2 Courts registration

Each year court owners have to contacted, to check if they wish to lend their court. A web based form can be used to authorize the use of the court in a similar way to the players registration. General information about the courts are submitted by the owners, they are listed in 3.2.2. In addition to these informations comments from the staff should be present and persist year after year (used if a court owner only wishes small kids rather than adults for example). Once completed a mail should be sent to the court owner confirming the registration of their court. A lot of court owners have to called to have their authorization, the staff should be able to create or edit the courts manually.

Rather than creating a new court each year, the court information should be compared to the data present in the database and updated. If a new court is created, a new identification number is associated to it.

Like for the players the staff should be able to edit anything, create and delete anything. List and search functions in all the courts are also required.

2.1.3 Group creation

Based on the players registration (age category and wishes), the available courts and wishes from owners the staff creates groups of pairs playing against each other in the morning. Errors like the use of a not authorized court or wrong age category can not happen. Once the group is completed a mail is sent to the players indicating them where they have to play. One member of the group (the group leader) and players with payment issues get a mail with the HQ address where they will get the information on where to play their matches.

To create the groups a user friendly interface will help the staff member handle the wishes of the owners and the players, otherwise all the information about the players and the available courts should be printed.

The match results have to be encoded once the players come back with the score board.

2.1.4 Knock-off tournament

The staff member responsible for the category chooses the size of the knock-off table and adds the players and the courts to the table. The courts are encoded up to the final match. The table is then printed and given to the players and indicates the addresses of the courts and contact information of his adversary. The staff member responsible of the category has to encode the results of the matches.

A specific page has to indicate the winners and finalists of each tournament at the end of the day.

2.1.5 Staff user account

Each staff member has his personal user account created by an admin. A role can be defined for each staff member. Staff members can be responsible for a specific category or for the court management. These accounts contain their information (phone number, name and mail) that will be displayed on the documents sent to the players or the owners of the corresponding category.

2.2 Should have

Every modification done by a staff member should be recorded when modifying a pair, a court, a group, a knock-off table. These modification are dated and displayed on the corresponding page and on the user history page.

Players should be linked year after year to keep track of their evolution and to complete missing data during the registration.

An automatic mail check should be implemented where the user will have to click on a link to validate his/her mail. If not validated, it will notify the staff.

Based on the morning results the knock-off tournament should be generated automatically (the wishes of the players are not taken into account here any more). As always the staff always has the last word and the tables have to be edited one generated.

2.3 Could have

Fully automate payments done on-line but leaving a possibility for players to user an other mean of transaction.

Authorize individual registrations meaning that people will play with an unlnown person, this should be implemented side by side with the more classical by pair registration. Ask the players to pay once a match is found.

An automatic generation of the groups based on the wishes of the players, the court owners, their address, the court address. The groups and group leader will have to be found to minimize player movements. An estimation of the carbon footprint can be sent to the players.

When rain occurs on the tournament is not stopped, players are sent to covered courts in clubs. The number of matches has then to be limited because the number of courts is reduced. By indicating the courts available, the actual results of the matches, generate new smaller groups to accelerate the tournament. Instead of having the two first pairs qualifying for the afternoon, only the winners of a half sized group are qualified.

Accounts can be used for the players and the owners to see their evolution and ease their registration year after year. It can be interesting for the owners to know who played on their court.

A step by step procedure can be created to be followed by the staff to contact the owners by phone so that no information is missed.

A mobile friendly website could be handy especially when the staff goes on the courts to see the players.

2.4 Would like to have

The program should check for cheaters by looking at their AFT ranking.
  Submit match results via smartphone (use of the player use account).
  Make the location and the players score available live on a public website.

3 General description of the actual program

The actual program was designed by an amateur and he wants to emphasis on the fact that it was one of his only and last programs. Be careful with the code that was given. (Part of the given code contains unused folders)

  It is a based on a web interface designed in PHP and a mySQL database (DB). It can be divided in two parts, the first handles the players registration and the second, accessible only by the staff is to manage the tournament.

3.1 Players registration

The players access the registration form a web address given in the brochure, the posters and the e-mail sent to the players. On this page they find something like in Figure 3. A more detailed description of what is required here will be explained below.

  This page is then followed by another one asking for the payment method (Credit card by contacting the ASMAE office by phone, PayPal, bank transfer or cash at ASMAE's office). Once the procedure is complete the data is stored in the DB in temporary category and a confirmation e-mail is sent. The registrations can only be made by pair, no single player can register to the tournament.

3.2 Tournament management

This part is much larger than the one previously described. Once connected to their personal account the staff members access a front page like in Figure 4.

  The different functionalities shown in Figure 4 are :

1. Encode new pairs. All the new registrations are validated and inscribed in another category in the DB.

2. Encoded pairs management, all the pairs encoded in point 1 can be edited and mail can be sent to them for here.

3. Group tournament management. Once all the pairs are encoded, the tournaments can be created, pairs can be assembled and courts assigned.

4. Court management. All the court information can be modified here and the confirmation that the court can be used is done here.

5. Link to the list of registered players that are not yet encoded. These pairs are transferred to an another category of the DB in point 1

Figure 3: Registration page for players

Figure 4: Front page

6. Not used

7. Links to several other tools including the fax machine, the webmail, a wiki for instructions to use the program and the DB management.

8. A list of useful documents (personal Dropbox)

9. A small forum for the staff (rarely used)

10. The list of the staff members with their last connection date. Each of the members has a personal ID, this helps to track what they have done in case of a problem.

3.2.1 Pairs management

At the beginning of the summer a brochure is sent to the address of players in the DB. This list is actually extracted manually from the DB, then reformatted in excel and finally using the publishing functions in word. The players go to the website to register.

After the pairs are registered they are stored in temporary database. A list of these pairs is found in point 5 of Figure 4. When registering this pair receives a unique identification number. The data from the players is cross-checked with the existing players DB (who played in previous years), each player has a unique ID too. If both of the players exist in the database, their pair number is linked to their player number.

The player description consists of :

1. Player ID

2. Title

3. Name

4. First name

5. Address ID number (no specific address is set here because several players or courts may have the same)

6. GSM (Fixed line number is included in the address

7. E-mail address

8. Birth date

9. AFT Ranking (Association francophone de Tennis). Players above a certain level can not join the tournament.

10. History of previous years tournament

11. Comments

12. Last modification date

13. Creation date

If the player is not in the database, a new player can be created based on the model above with a specific ID. The pair can then be created and used in the tournament generation. An example of an encoded pair is shown in Figure 5.
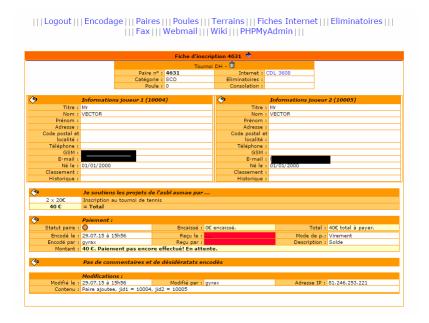
Figure 5: Example of a encoded pair, normally most of the fields are complete when a true profile

3.2.2 Court management

Similarly to the players, a list of addresses is extracted from the DB to send them an invitation to lend their court. All the responses from the court owner have to be treated by hand. They can come from several sources : e-mail, paper mail, fax, phone, link to a google form.

The courts can be accessed by their ID or with a search engine listing the closest matches. These courts are also defined by a list of elements, most of them are shown in Figure 6. The complete list of the required elements for a court is :

1. ID

2. Court number different from ID (Figure 1)

3. Address of the court

4. Court surface (Multiple choice)

5. Type of court (Private owner/Club) (Multiple choice)

6. Geographical zone

7. On which map it is located. A large plan is given to the players in the afternoon to find the courts. All the courts can not be placed on a single map.

8. Special instructions for accessing the court

9. Address of the owner. This address comes from the same database as the players address DB.

10. Map and Satellite of the pictures

11. Response to the current edition containing :

- If the owner wants to lend its court

- The state of the court

- The mean of answer

- Comments on what the owner wants (if he wants his grand kids on the court or an indication of where the toilets are)

12. Once the tournament has begun, an indication on who is playing on the court

13. A history of previous editions

14. A history of previous modification

Figure 6: Example of a court page

Once the owner has authorized to use his court and that the staff has validated it, the court can be used in the tournament generation.

3.2.3 Tournament management

The pairs are encoded, the courts are authorized, the group tournament organization can start. All the court and pair information can be printed category by category on small papers so the tricky organisation can begin. The age categories are found in Table 1

Year of birth	Category in 2015
2005-2006	Pré-minimes
2003-2004	Minimes
2001-2002	Cadet
1999-2000	Scolaire
1996-1998	Junior
1975-1995	Senrios
-1975	Elites

Table 1: Age categories in 2015

Each category leads to three different tournaments (men, women, same sex). In addition to these 21 tournaments the "Tournoi des familles" takes place on Saturday.

The staff members each get a category to handle, once he has sorted his pairs manually and found suitable courts for all his groups. The information can be encoded into the software in a page like in Figure 7. Based on the pair number and the court number the group is generated. From there, a mail is sent to the group chief requesting him to be at 8am at the HQ so that he can get the score/group board, as well as people who have not paid yet. The other players receive a mail with the address of the court their group matches will take place.

When the morning matches are finished, the two best pairs of each group are manually encoded in the elimination table. Different courts are assigned to the different matches up to the final. A tournament sheet is printed and distributed to the players, the phone number of the staff member is written on the sheet. During the tournament the staff member updates the elimination sheet with the scores.
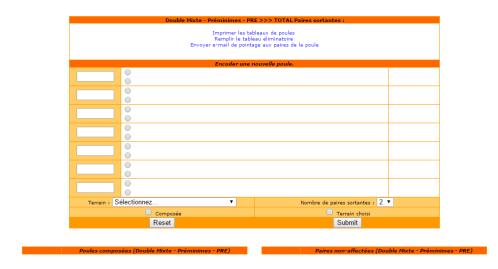

Figure 7: Creation of a group

3.2.4 Address management

Players and courts DB both point to the address DB which does not able direct modification from the web interface, it requires a jump in the phpMyAdmin (software handling the DB). These adresses are composed of the following elements :

1. ID
2. Family name
3. Address
4. Telephone
5. Fixed line phone number
6. Should we sent the invite
7. Court number if any
8. Last modification date
9. Creation date

4 Reasons for a new program

The actual program works fine except that it was designed nearly ten years ago and it requires a lot of tips and tweaks to work.

One of the major issues we are having come from the special characters in French (é,è,à,...) due to encoding issues.

The DB is a mess, it is for example not possible to remove or at least hide old courts and players. Some crucial options are missing, it is impossible to leave a comment on a court that stays every year (to explain why the owner does not want to share for example). A new architecture will be detailed below to try to limit this type of issue.

Elimination tables are tricky to use and lack flexibility when they could be easily generated from the size of the tournament and by encoding the results of the group tournament. The only thing left would be to assign courts to the matches.

The request was made several times if single players could meet other unknown single players to form a pair. This requires an infrastructure that is not available now. The site only supports pairs.

A lot of easily automated task have to be done by hand (counting the number of BBQ, printing labels to send the invites/brochure,...)

The total absence of documentation makes the program hard to maintain.

Handling payments is really difficult and could be automated (PayPal for credit cards and Ogone for debit cards) with an automatic validation of the payment.