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Information Technology
Practical Assessment Task
Grade 11, 2022

Task 1A

Task definition and proposed solution

In today's world extra curricular activities are being intergrated in the education system of many schools with the aim of giving pupils something fun to do aside from academic activities. Competitions are also being conducted in schools and between schools as a way of giving learners a goal to work towards and to give learners a break from time to time.

Ineffecient and crude methods are often used during these competitions for planning, keeping track of scores and determining the placement of participants according to how they scored. Pen and paper, sometimes a calculator, are the most common tools used to do the above and when you scale the competition(s) up you notice that it becomes tedious as you are wasting time and resources.

I'm proposing that the proccess of planning and overseeing a competition can be made much more efficient and effective through the use of an application. The application will cater for tennis singles/doubles knock-out competitions. With it tournament organizers will be able to plan, track and analyse a tournament with the application. Tournaments will also be recorded into a database so that they can be retrieved easily if the need arises. This will help torunament organizers keep track of their tournaments and cut some costs as less physical resources will be used.

Task 1B

User story and acceptance test

WHO	WHAT	WHY
Tournament Organizer	Register	To create an account for themselves so that they can use the application
	Login	To get access to their account and the application
	Create a tournament	Creating a record in the database with the provided information about the tournament
	Update and delete a tournament	Manipulate the information about the tournament if it is changed or a mistake has been made and delete the tournament if it is no

		longer valuable.
	Retrieve a tournament(s)	View a list of the organizer's tournaments and also view information about a particular tournament
	Create a match entry	Record every match that happened during the tournament so that the application can make accurate conclusions.
	Update and delete a match entry	Change the information about the match as it progresses or if a mistake has been made during the creation of the match entry.
	Retrieve a match entry	View a list of match entries of a tournament and view a particular match entry's information.
	Create a participant account	Enable participants to login and have access to the application.
	Delete a participant account	Remove participants that are not conducting themselves in an orderly or expected manner. Remove participants that are no longer participating.
	Retrieve a participant account	View a participant's information that the participant has provided and ensure that they are complying with the organizer's rules and regulations.
	Create a match official account	Enable match officials to login and have access to the application.
	Delete a match official account	Remove officials that are not conducting themselves in an orderly or expected manner.

		Remove match officials that are no longer available.
	Retrieve a match official account(s)	View an official's information that the official has provided and ensure that they are complying with the organizer's rules and regulations
	Export a tournament's information	Circulate the information among people and make hard copies if necessary.
	Retrieve their account information	View their information and ensure that it is accurate.
	Update and delete their account	Make changes to their account and remove their account if the reason to do so arises.
Participant	Login	To get access to their account and the application
	Retrieve their account information	View their information and ensure that it is accurate and is compliant with the rules and regulations.
	Retrieve tournament information (those that they are participating in)	View information about tournaments that the participant has participated in and ensure it is accurately being recorded
	Retrieve their information regarding a tournament that they participate in	View their information about regarding the tournament and ensure that it is accurate
	Export their information	To circulate the information amongst certain people
	Update and delete their account	Change information about themselves and keep it up-to-date. Remove their account from the database if the need arises.

Official	Login	To get access to their account and the application
	Retrieve their account information	View their information and ensure that it is accurate and is compliant with the rules and regulations.
	Retrieve tournament information (those that they were officiating)	View the information and ensure that it was accurately recorded.
	Retrieve their information regarding a tournament that they were officiating	To circulate the information amongst certain people.
	Export their information	To circulate the information amongst people
	Update and delete their account	Change information about themselves and keep it up-to-date. Remove their account from the database if the need arises.

Task 2

Database design

The database design of the application has been created in the most optimal and effective manner of handling all the information that an organizer would need to plan a tournament.

Database Tables

- Tournament

Field Name	Data Type
ID	AutoNumber
Title	Short Text
Organizer	Short Text
Participants	Number
Start Date	Date/Time
Prize Money	Currency
End Date	Date/Time
Matches	Number

- Organizer

Field Name	Data Type
First Name	Short Text
Surname	Short Text
Email Address	Short Text
Password	Short Text
Gender	Short Text
ID	AutoNumber

- Participant

Field Name	Data Type
ID	AutoNumber
First Name	Short Text
Surname	Short Text
Gender	Short Text
Password	Short Text
Email Address	Short Text

- Official

Field Name	Data Type
First Name	Short Text
Surname	Short Text
Gender	Short Text
Email Address	Short Text
Password	Short Text
ID	AutoNumber


- Match

Field Name	Data Type
ID	AutoNumber
Location	Long Text
Timestamp	Date/Time
Official	Short Text
Participants	Number
Match Sets	Number


- Match Set

Field Name	Data Type
ID	AutoNumber
Games	Number
Set ID	Number

- Game

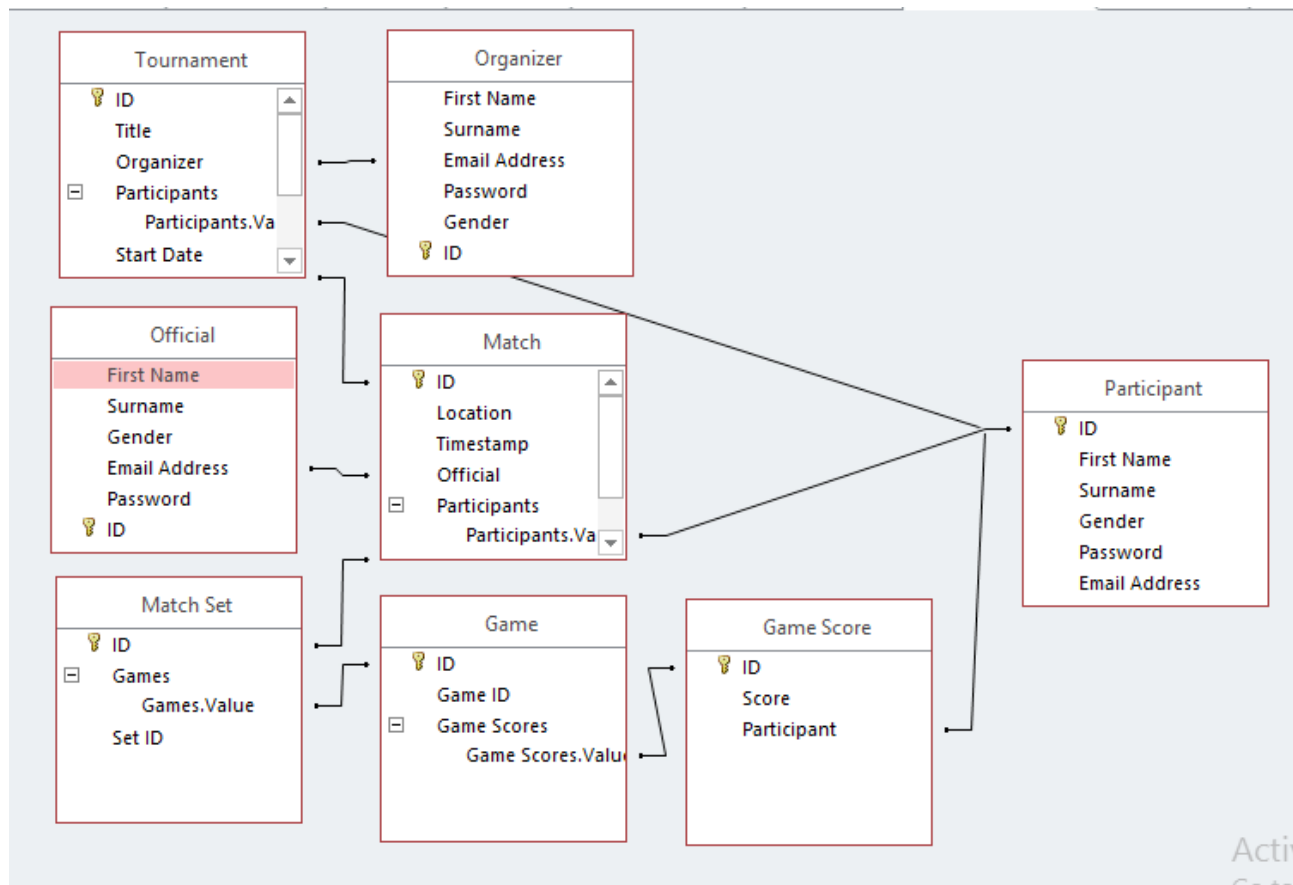
Field Name	Data Type
 ID	AutoNumber
Game ID	Number
Game Scores	Number

- Game Score

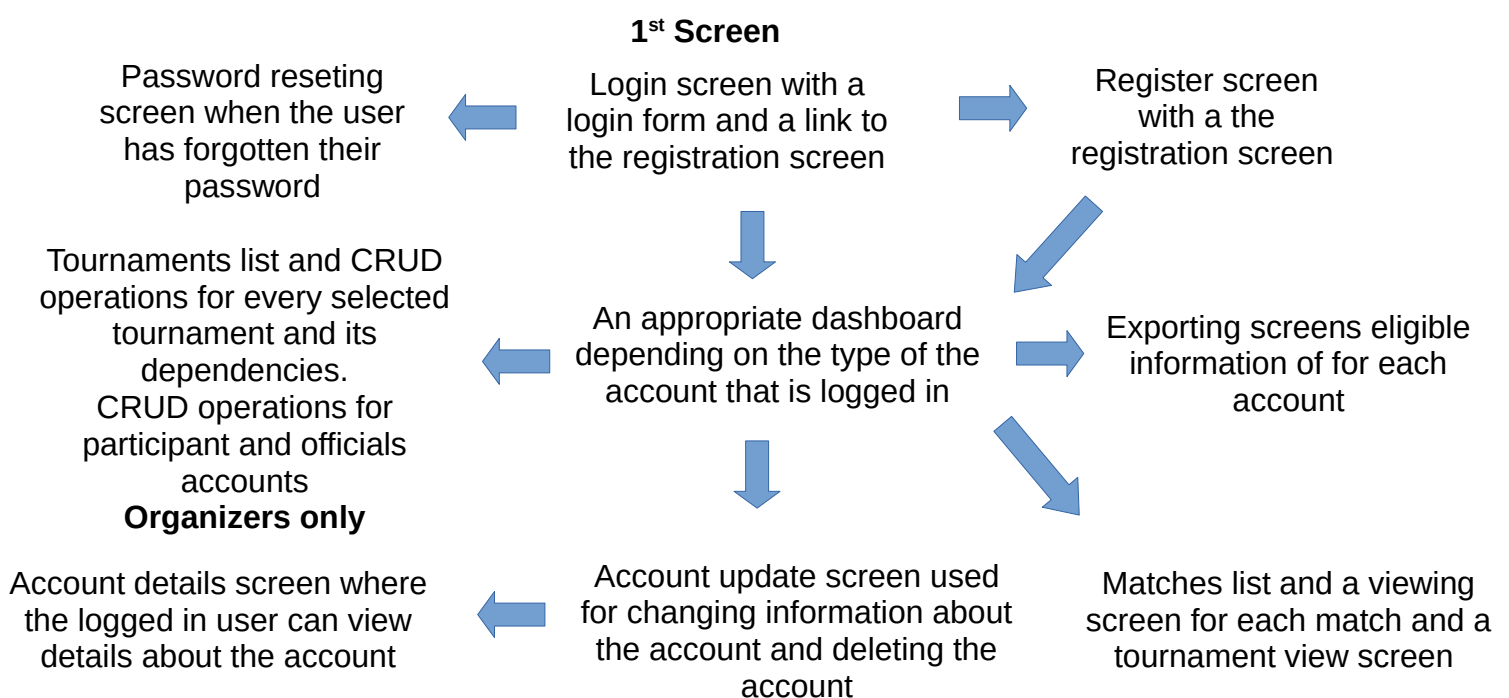
Field Name	Data Type
 ID	AutoNumber
Score	Number
Participant	Number

Field Name	Field Size
ID	+2,147,483,647
First Name	75
Surname	75
Email address	125
Password	125
Gender	10
ID Number	13
Tournament : Title	100
Tournament : Prize Money	+2,147,483,647
Match : Location	255
Match Set : Set ID	+2,147,483,647
Game : Game ID	+2,147,483,647
Game Score : Score	+2,147,483,647

Database relationships



Task 3 Global overview of the project



Task 4

Use of text files, arrays and custom defined methods

My application is going to utilize text files for exporting information out of the application and the users being able to circulate it amongs people. This makes efficient use of textfiles as they are very small in size and easy to work with. This allows users to easily and extract all the informatin they need from the database into a portable text file that they can share with others.

Arrays are going to be utilized in many compex aspects of the application. Listing screens for various tables are going to use arrays to store the information from the database. Arrays are going to be used as the middleman between the database and the application. They are going to be used to hold objects and variables of the same type.

Defined methods are going to be utilized to avoid rewriting certain blocks and lines of code. They are also going to be used to perform repetitive tasks, calculations and operations. They also increase the readability of the code. Data validation methods are going to be defined to put all the complexity of validating certain fields in a single block of code and repeteadly reffering to it everytime a field needs to be validated.

Task 5

Input, Processing, Output and data validation

Input	Process	Output
Login credentials via the login form on the welcome screen. <ul style="list-style-type: none">Email & password: characters	<ul style="list-style-type: none">Check if the email address is present and has the correct format.Check the presence of the password and ensure that its length is above 8 charactersLookup an account with the information provided and login if found.	<ul style="list-style-type: none">A message dialog with a text message that raises any errors.A message dialog with a text message signifying whether the login attempt was successful
Registration information via the registration form. <ul style="list-style-type: none">Name, surname, email & password : charactersGender : select	<ul style="list-style-type: none">Check if the email address is present and has the correct format.Check the presence of the password and	<ul style="list-style-type: none">A message dialog with a message signifying whether the registration was successfulAn error dialog will

	<p>ensure that its length is above 8 characters</p> <ul style="list-style-type: none"> • Check the presence of the name and surname. • Ensure that a valid gender choice was selected • Lookup an account with the information provided and create the account if not found. • Create the organizer account if the provided information is valid 	<p>be displayed if any errors are encountered</p>
<p>Participation creation information via the participant creation screen and the official creation information via the match official creation screen.</p> <ul style="list-style-type: none"> • First name, surname, email, password : • Gender : select 	<ul style="list-style-type: none"> • Check if the email address is present and has the correct format. • Check the presence of the password and ensure that its length is above 8 characters • Ensure that a valid gender choice was selected • Check the presence of the name and surname. • Ensure that there is not an account with the same email address before creating the account • Create the participant account if the information is valid • Create the match official account if the information is valid 	<ul style="list-style-type: none"> • A message dialog with a message signifying whether the account was created successfully • An error dialog will be displayed if any errors are encountered
<p>Tournament creation information via the</p>	<ul style="list-style-type: none"> • Check the presence of the title. 	<ul style="list-style-type: none"> • A message dialog with a text message

<p>tournament creation form.</p> <ul style="list-style-type: none"> Title : characters Participants : participant account object instances Start date & end date : date (DD-MM-YYYY) Prize money : non-negative integer 	<ul style="list-style-type: none"> Check the presence of participants and ensure that the count is greater than or equal to 2. Check the presence and format of the start and end date and ensure that they are the current or future dates Ensure that the prize money is a non-negative number Create a tournament object if the provided information is valid 	<p>that signifies whether the tournament was created or not.</p> <ul style="list-style-type: none"> Error dialogs may be raised if errors are encountered during processing.
<p>Match creation information via the match creation form</p> <ul style="list-style-type: none"> Location : characters Timestamp : date and time (HH:MM DD-MM-YYYY) Official : official account object instance Participants : participant account object instances 	<ul style="list-style-type: none"> Check the presence of the location. Check the format of the timestamp and ensure that the timestamp is the current or a future date Ensure that the count of participants provided is more than or equal to 2. Create a match object if the information is valid 	<ul style="list-style-type: none"> A message dialog with a text message that signifies whether the match was created or not. Error dialogs may be raised if validation errors are encountered during processing.
<p>Match set creation information via the match set creation form and game creation information via the game creation form.</p> <p>Match set</p> <ul style="list-style-type: none"> Set ID : non-negative integer Games : game object instances <p>Game</p> <ul style="list-style-type: none"> Game ID : non- 	<ul style="list-style-type: none"> Check the presence of the set id and ensure that it is a positive integer. Check the presence of the game id and ensure that it is a positive integer. Create a match set object if the information is valid Create a game object if the 	<ul style="list-style-type: none"> A message dialog with a text message that signifies whether the match set or game was created or not. Error dialogs may be raised if validation errors are encountered during processing.

negative integer <ul style="list-style-type: none"> Game scores : game scores object instances 	information is valid.	
Game score creation information via the game creation form <ul style="list-style-type: none"> Score : non-negative integer Participant : participant account object instance 	<ul style="list-style-type: none"> Ensure that the score is not a negative integer Check the presence of a participant. Create a game score object if the provided information is valid 	<ul style="list-style-type: none"> A message dialog with a text message that signifies whether the game score was created or not. Error dialogs may be raised if validation errors are encountered during processing.

Task 6

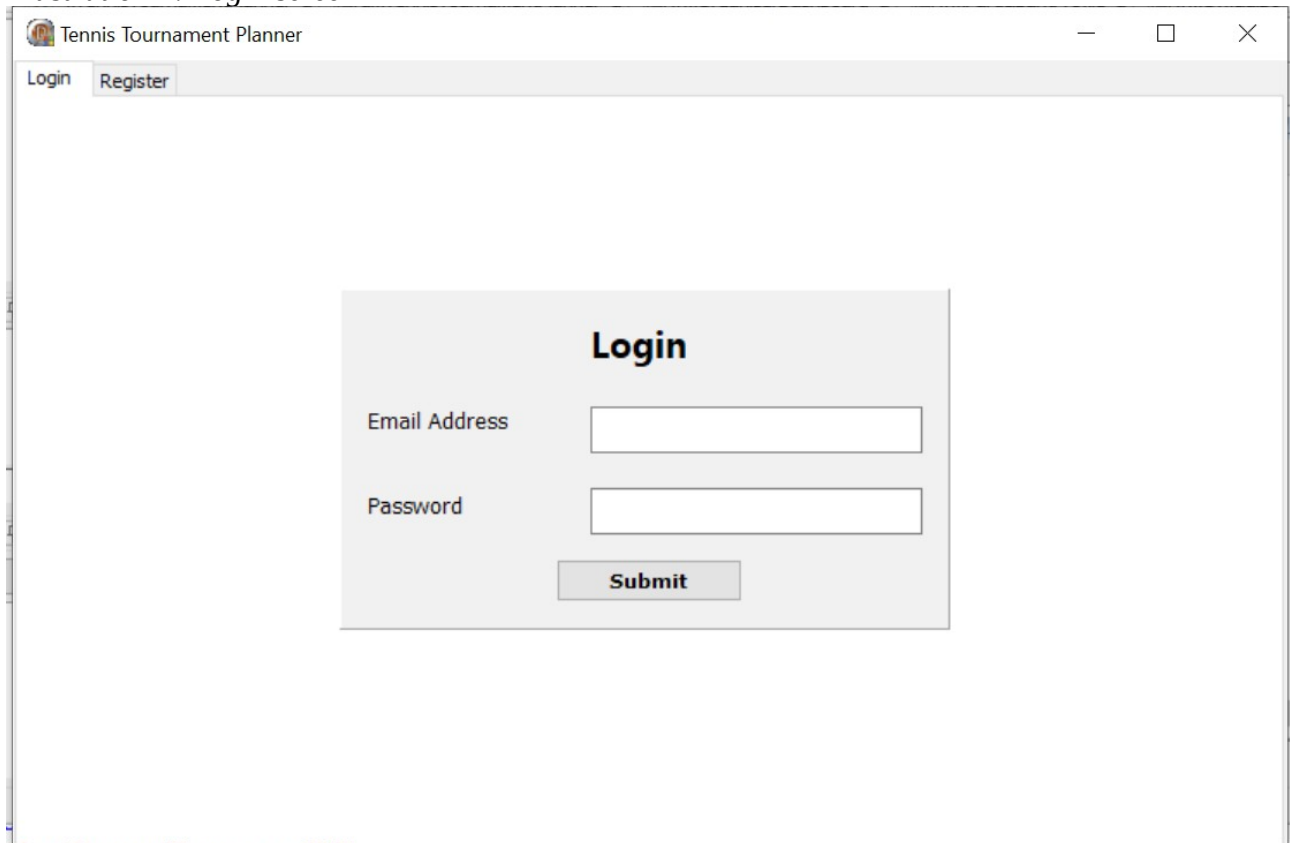
Screenshots

Illustration 1: Registration screen

The screenshot shows a web application window titled "Tennis Tournament Planner". At the top, there are two tabs: "Login" and "Register". The "Register" tab is selected. Below the tabs, there is a registration form with the following fields and controls:

- Name**: A text input field.
- Surname**: A text input field.
- Gender**: A dropdown menu with a downward arrow.
- Email Address**: A text input field.
- Password**: A text input field.
- Submit**: A button located at the bottom of the form.

Illustration 2: Login screen



The screenshot shows a web application window titled "Tennis Tournament Planner". It has two tabs: "Login" (selected) and "Register". The main content area displays a "Login" form. The form has a title "Login" in bold. It contains two input fields: "Email Address" and "Password". Below these fields is a "Submit" button.

Tennis Tournament Planner

Login Register

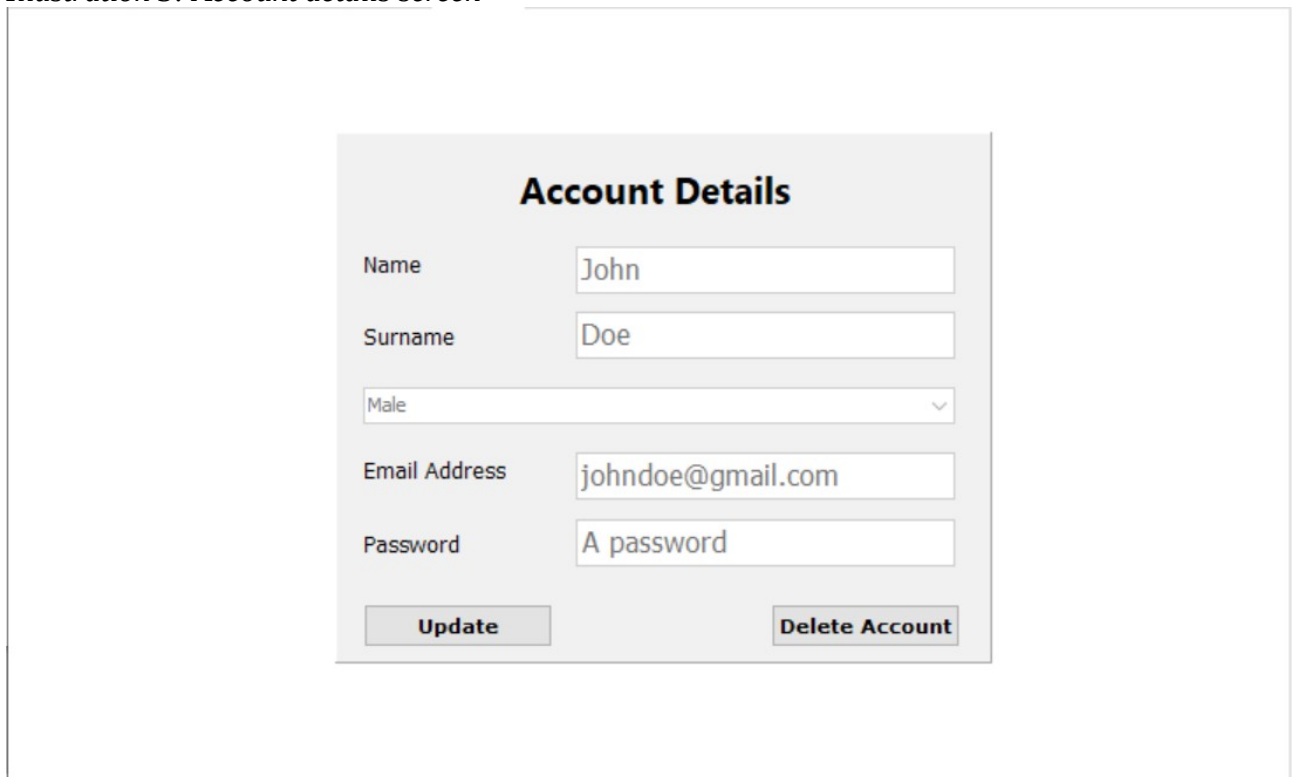
Login

Email Address

Password

Submit

Illustration 3: Account details screen



The screenshot shows a web application window displaying an "Account Details" form. The form has a title "Account Details" in bold. It contains several input fields: "Name" (with value "John"), "Surname" (with value "Doe"), a gender dropdown menu (with value "Male"), "Email Address" (with value "johndoe@gmail.com"), and "Password" (with value "A password"). At the bottom of the form are two buttons: "Update" and "Delete Account".

Account Details

Name

Surname

▼

Email Address

Password

Update Delete Account

Illustration 4: Organizer dashboard : Tournaments

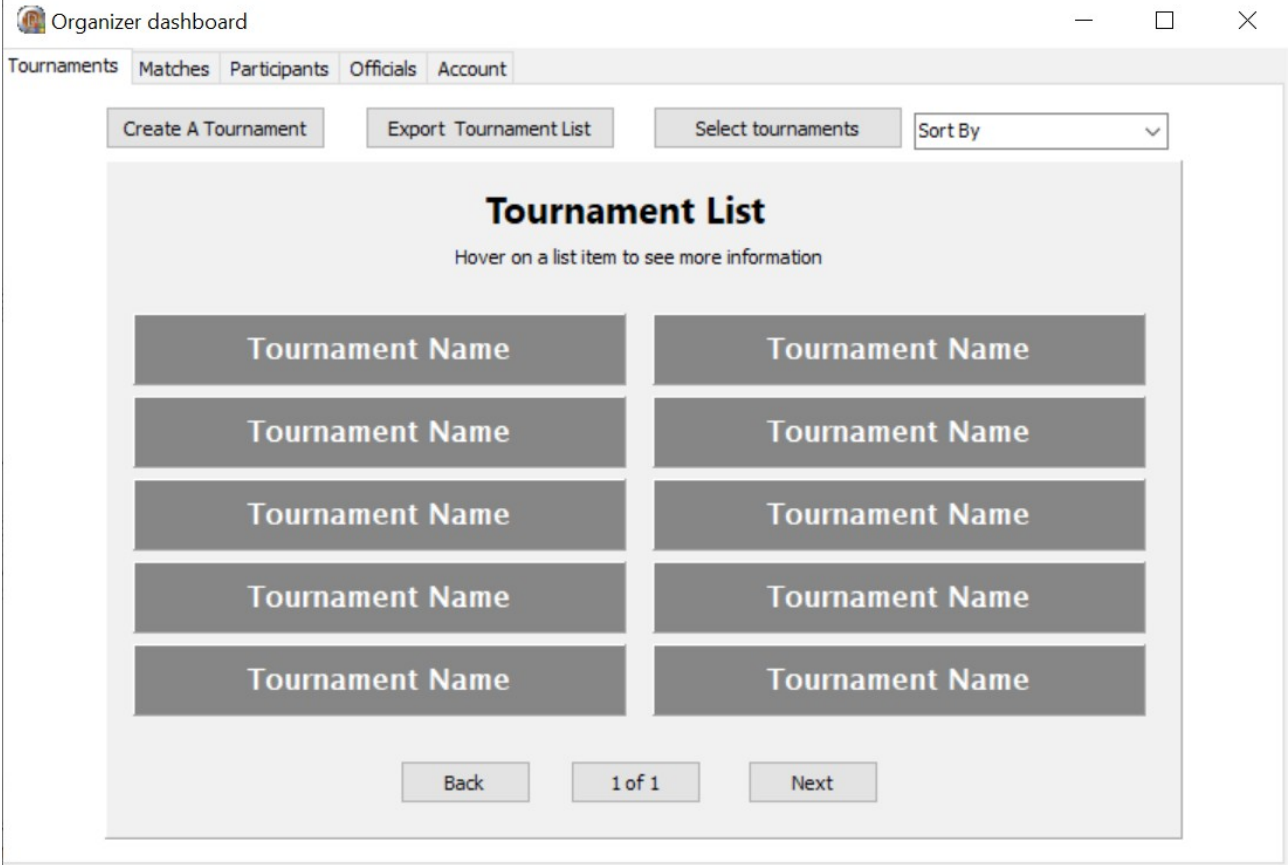


Illustration 5: Organizer dashboard : Matches

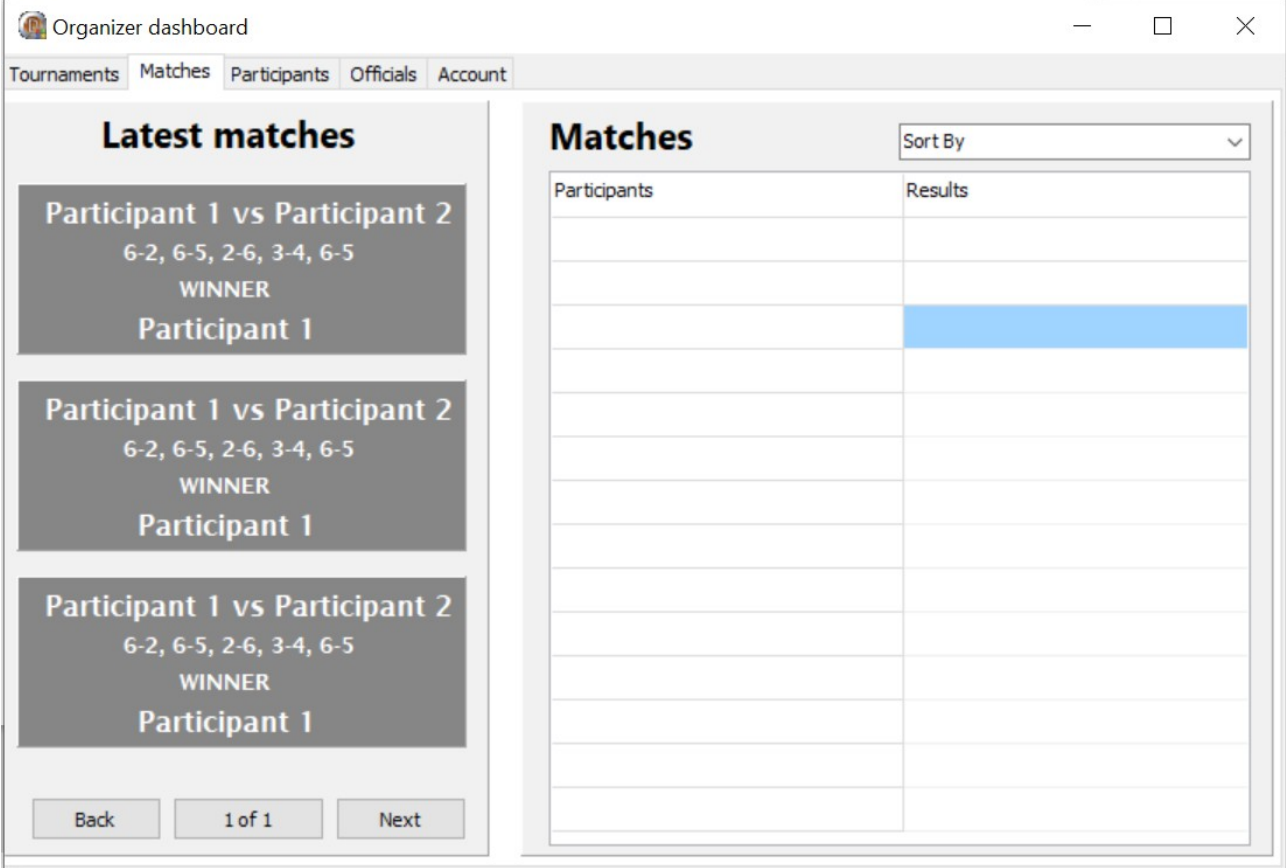



Illustration 6: Organizer dashboard : Participants

 Organizer dashboard

TournamentsMatchesParticipantsOfficialsAccount


Registered participants

Create A Participant120 ParticipantsSort By

Name Of ParticipantMale Number of matches: 0 Number of wins: 0 Number of losses: 0# 135	Name Of ParticipantMale Number of matches: 0 Number of wins: 0 Number of losses: 0# 135
Name Of ParticipantMale Number of matches: 0 Number of wins: 0 Number of losses: 0# 135	Name Of ParticipantMale Number of matches: 0 Number of wins: 0 Number of losses: 0# 135
Name Of ParticipantMale Number of matches: 0 Number of wins: 0 Number of losses: 0# 135	Name Of ParticipantMale Number of matches: 0 Number of wins: 0 Number of losses: 0# 135

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Illustration 7: Organizer dashboard : Match officials

 Organizer dashboard

TournamentsMatchesParticipantsOfficialsAccount

Registered officials

Create An Official50 OfficialsSort By

Name Of OfficialMale Number of matches: 0# 135	Name Of OfficialMale Number of matches: 0# 135
Name Of OfficialMale Number of matches: 0# 135	Name Of OfficialMale Number of matches: 0# 135
Name Of OfficialMale Number of matches: 0# 135	Name Of OfficialMale Number of matches: 0# 135
Name Of OfficialMale Number of matches: 0# 135	Name Of OfficialMale Number of matches: 0# 135

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Illustration 8: Participant dashboards : Tournaments

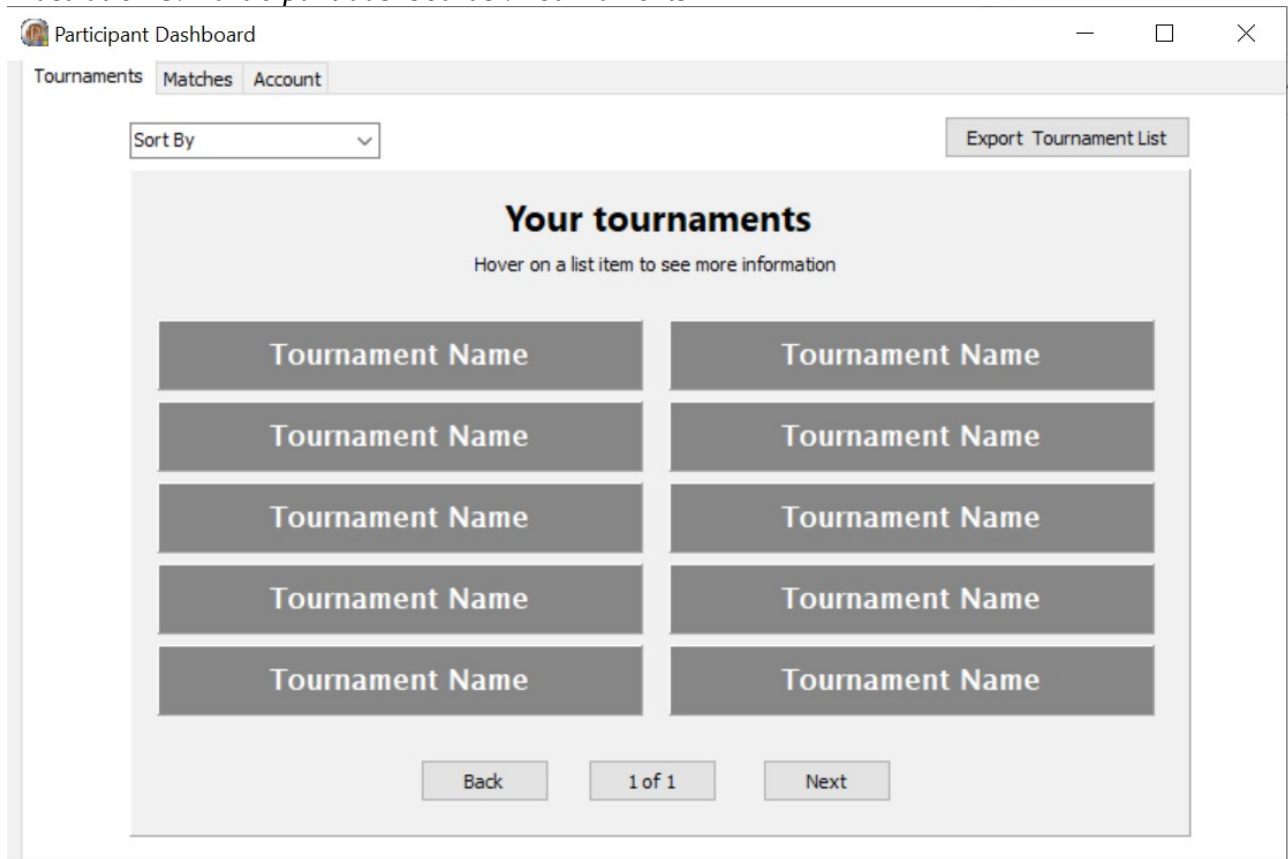


Illustration 9: Participant dashboards : Matches

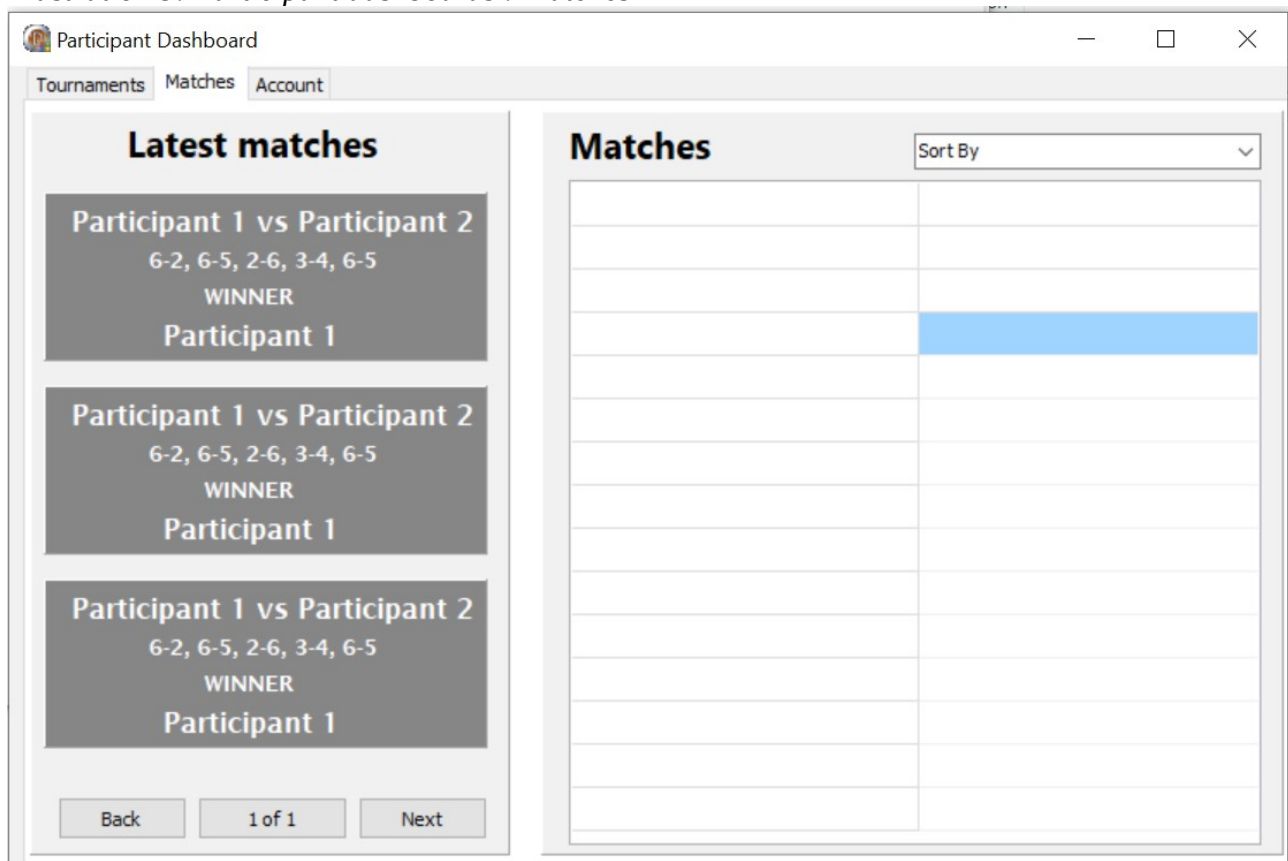


Illustration 10: Match official : Matches

Official Dashboard

MatchesAccount

Sort By

Export Matches List

Participant 1 vs Participant 2

Male

Winner : Participant 1

Sets : 6

Timestamp : 01-01-2022

Match #15

Participant 1 vs Participant 2

Male

Winner : Participant 1

Sets : 6

Timestamp : 01-01-2022

Match #15

Participant 1 vs Participant 2

Male

Winner : Participant 1

Sets : 6

Timestamp : 01-01-2022

Match #15

Participant 1 vs Participant 2

Male

Winner : Participant 1

Sets : 6

Timestamp : 01-01-2022

Match #15

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