

What is your project about, who is it for, what does it do

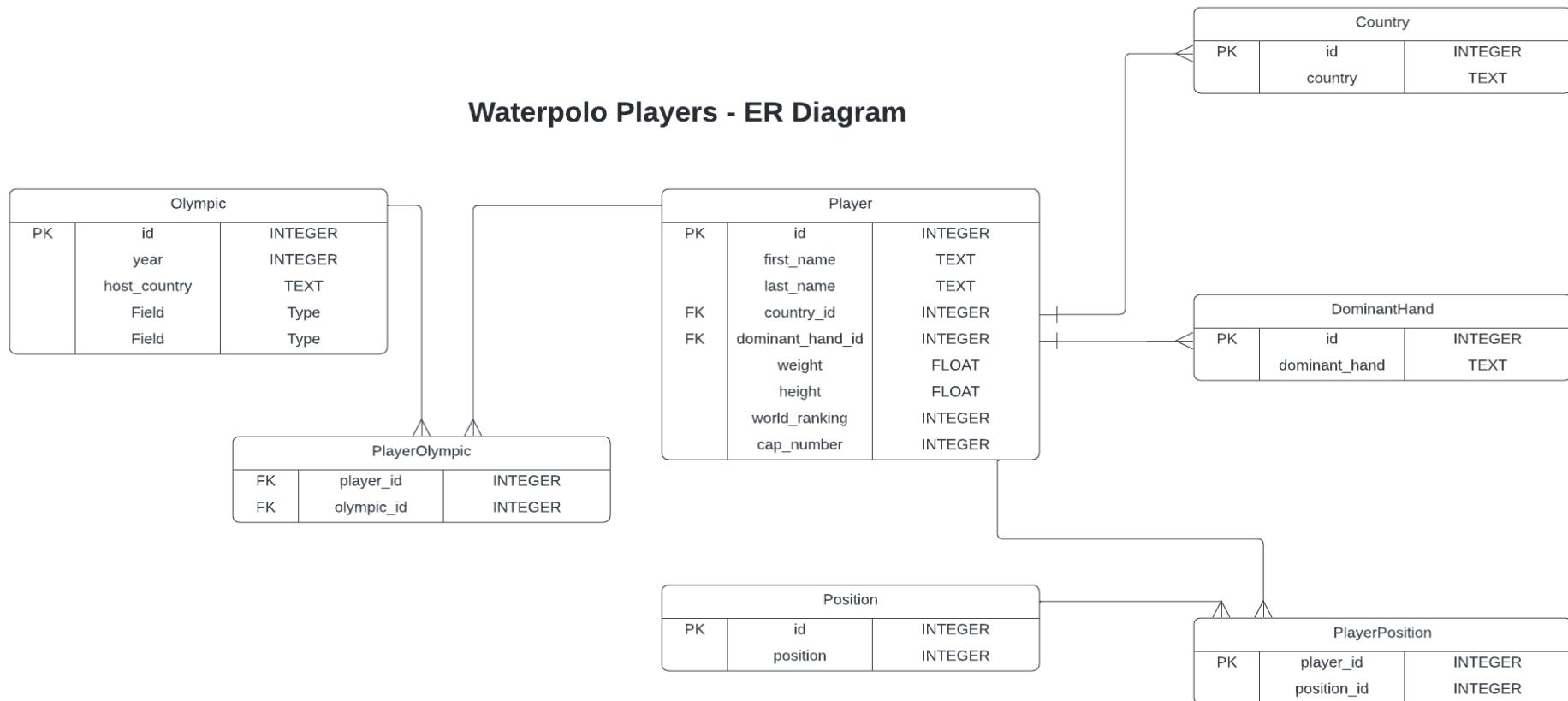
My project contains data about water polo players such as their affiliated country, playing positions and tournaments that they have participated in. This information will be useful to water polo players and enthusiasts who enjoy following the sport and want to learn more about certain players. The end project which the user will see is a website that interacts with the database behind the scenes.

This project could then be refined to cater for athletes of other sports and include more in depth game statistics that could help coaches, managers and players see their progress at a club or professional level.

My project is designed to be used on a desktop.

ER Diagrams and Notes

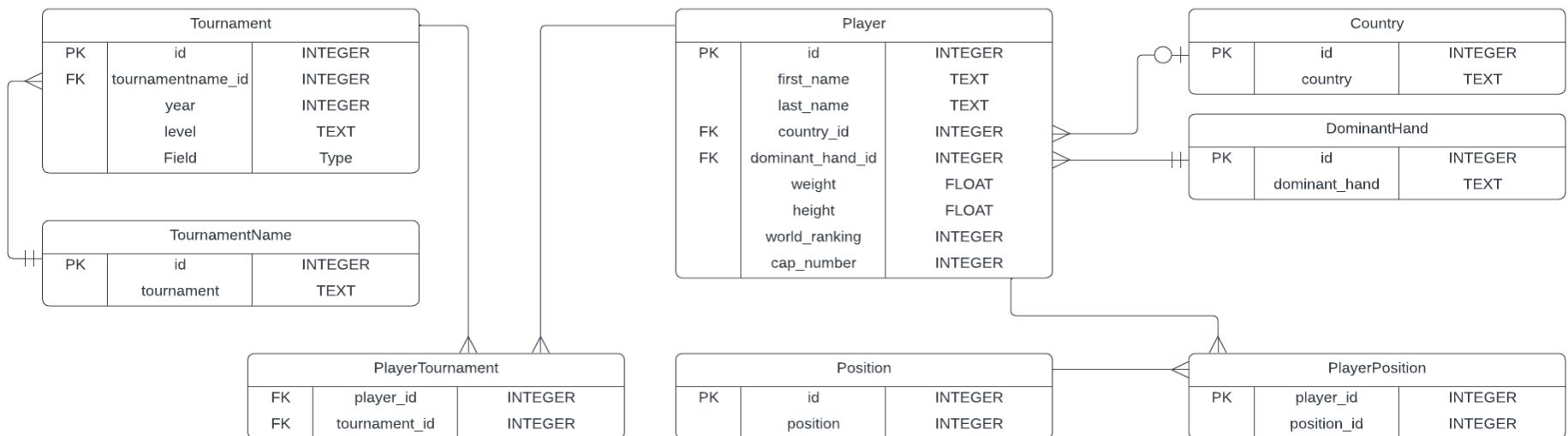
ER Diagram #1 (22/03/23)



This ER diagram is lacking key information that I want to include in my database. I think it could be improved by changing the 'Olympic' table to tournaments so that I can include all types of water polo tournaments in my database.
I like how this ER diagram has 2 many to many relationships because that allowed me to include 2 bridging tables.

ER Diagram #2 (24/03/23)

Waterpolo Players - ER Diagram

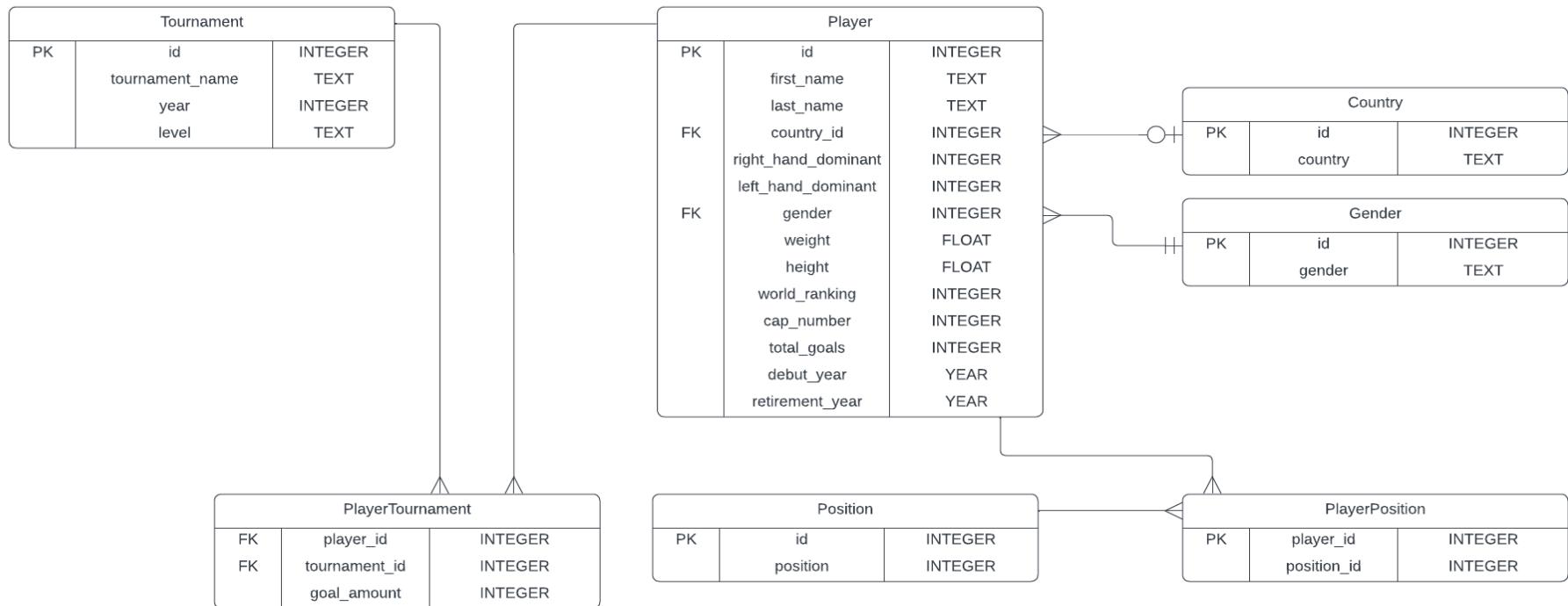


By changing the 'Olympic' table to 'Tournament' I have broadened the type of information I can include in my database. One problem I had with the previous ER diagram was that each tournament is repeated every few years or so with the same name. I fixed that problem by adding in another table ('TournamentName') to avoid errors in spelling out the names of the tournaments each time. This way, when adding new tournaments to the database, the only thing changing is the year, tournament_id and players.

Currently I have an extra table for 'DominantHand' so that it is easier to choose between the options but I don't think this extra table is necessary.

ER Diagram #3 (27/03/23)

Waterpolo Players - ER Diagram



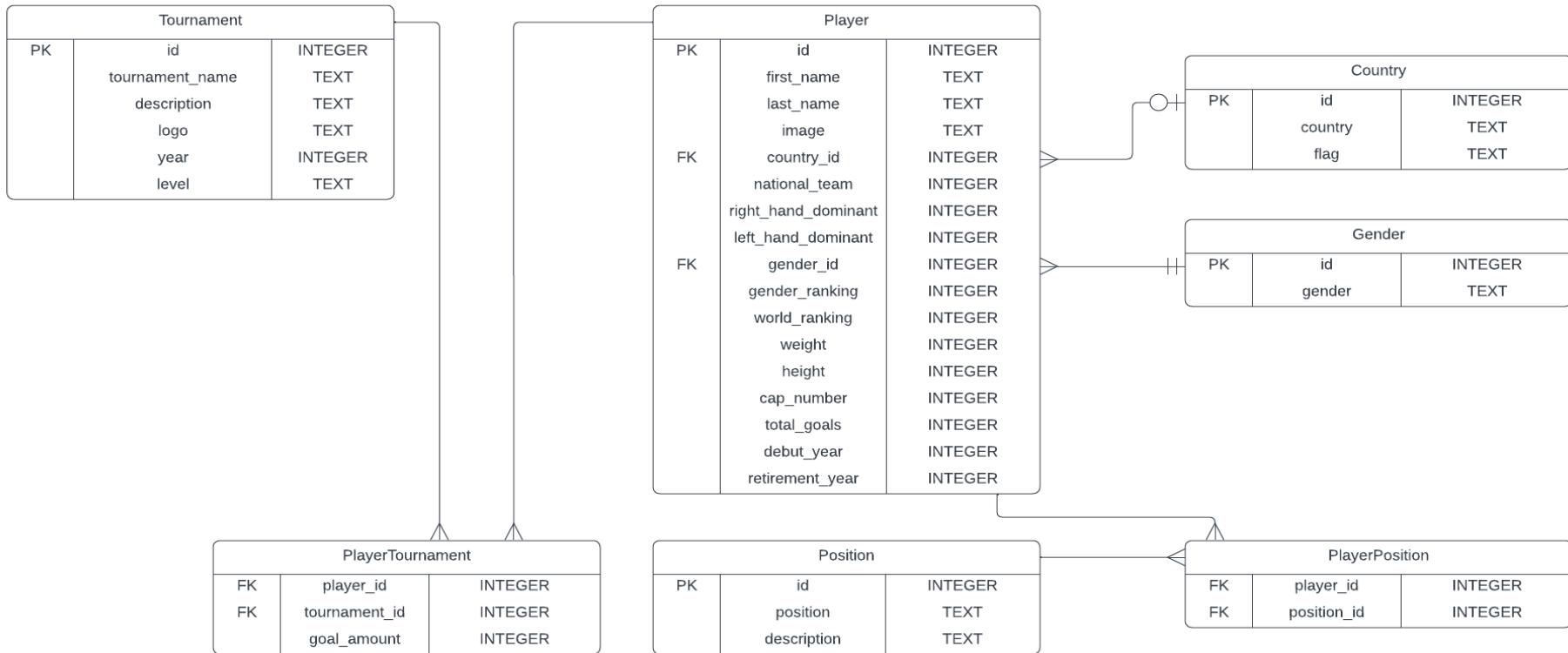
I changed my mind about having the 'TournamentName' table because it was unnecessary to the end product. Instead I just have a 'Tournament' table.

I removed the 'DominantHand' table and replaced it with two columns in the 'Player' table with integer types. I am planning to use binary, 1 = 'on' or 'true' and 0 = 'off' or 'false' to convey if the player is right or left handed. This is also a clever way to accommodate a player who could be ambidextrous, which removes room for error.

I also added a 'Gender' row and table, because I realised I would have to sort between male and female tournaments and players.

ER Diagram #4 (04/04/23)

Waterpolo Players - ER Diagram

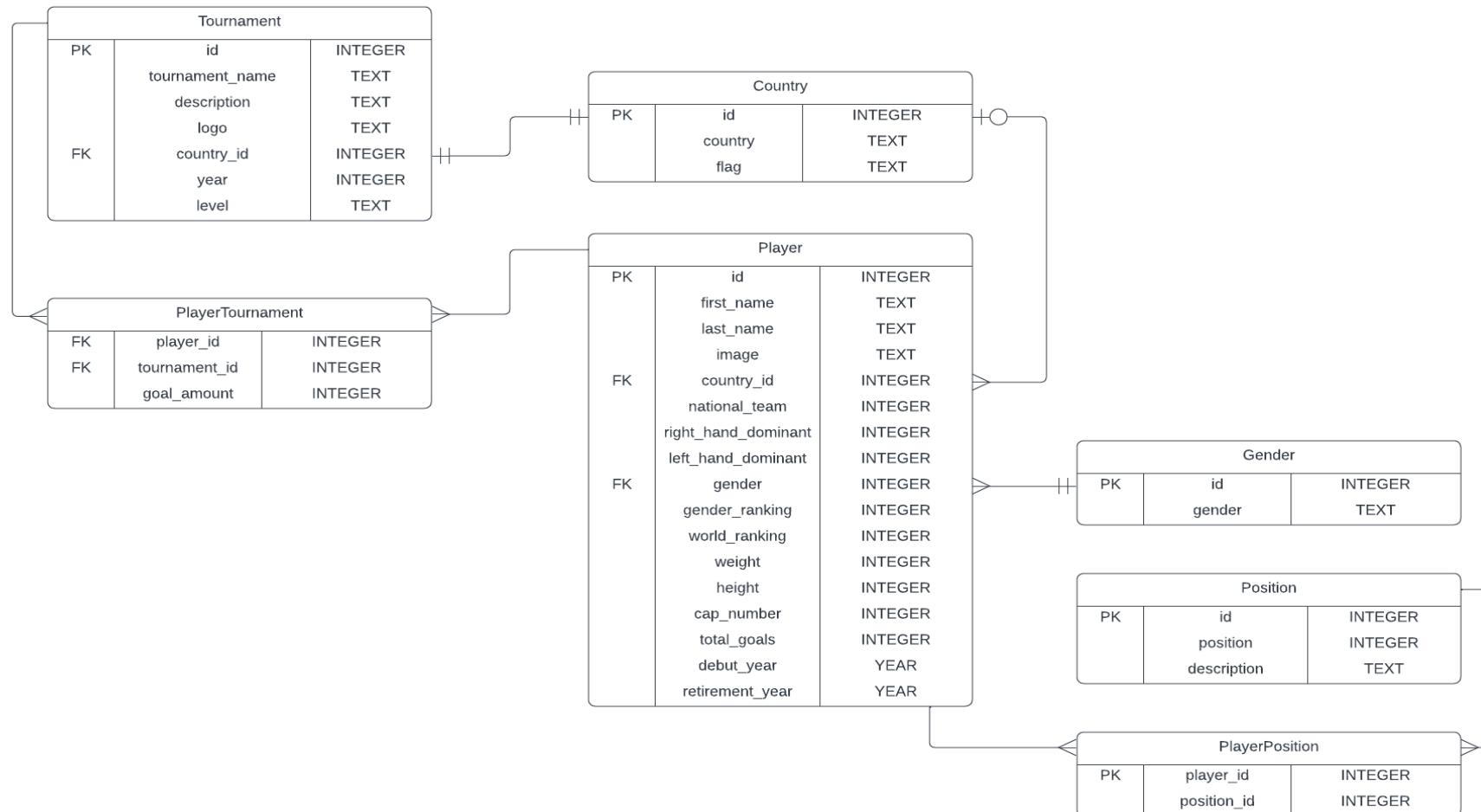


I changed the weight and height from 'Floats' to 'Integers' to eliminate problems that could arise when converting units from the SQL database into my flask/python code.

I also added some extra rows for some tables. For example I added a 'description' row to the 'Position' and 'Tournament' table so that the user can access some extra information. I also added 'image', 'logo' and 'flag' rows throughout the tables so that I would have some images for my website, as I forgot to include them on previous ER diagrams.

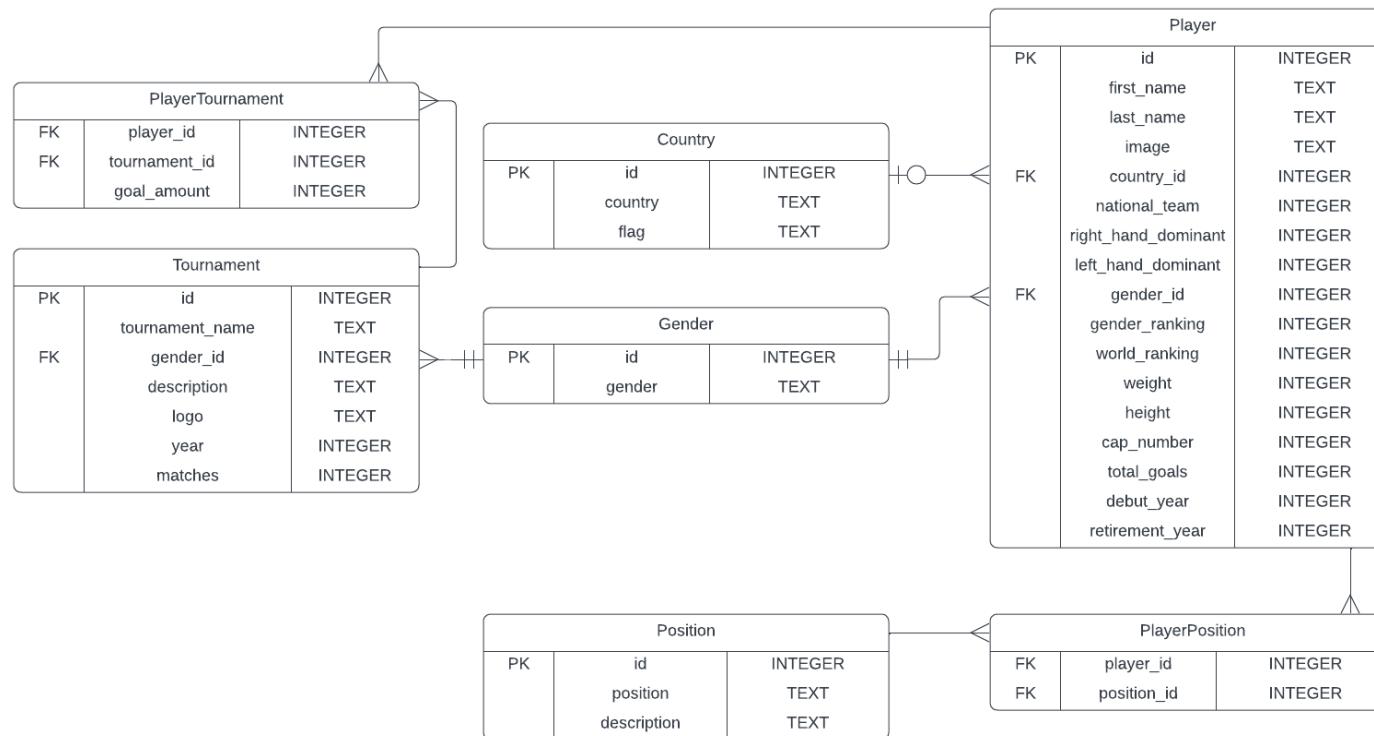
ER Diagram #5 (05/04/2023) (too difficult)

Waterpolo Players - ER Diagram



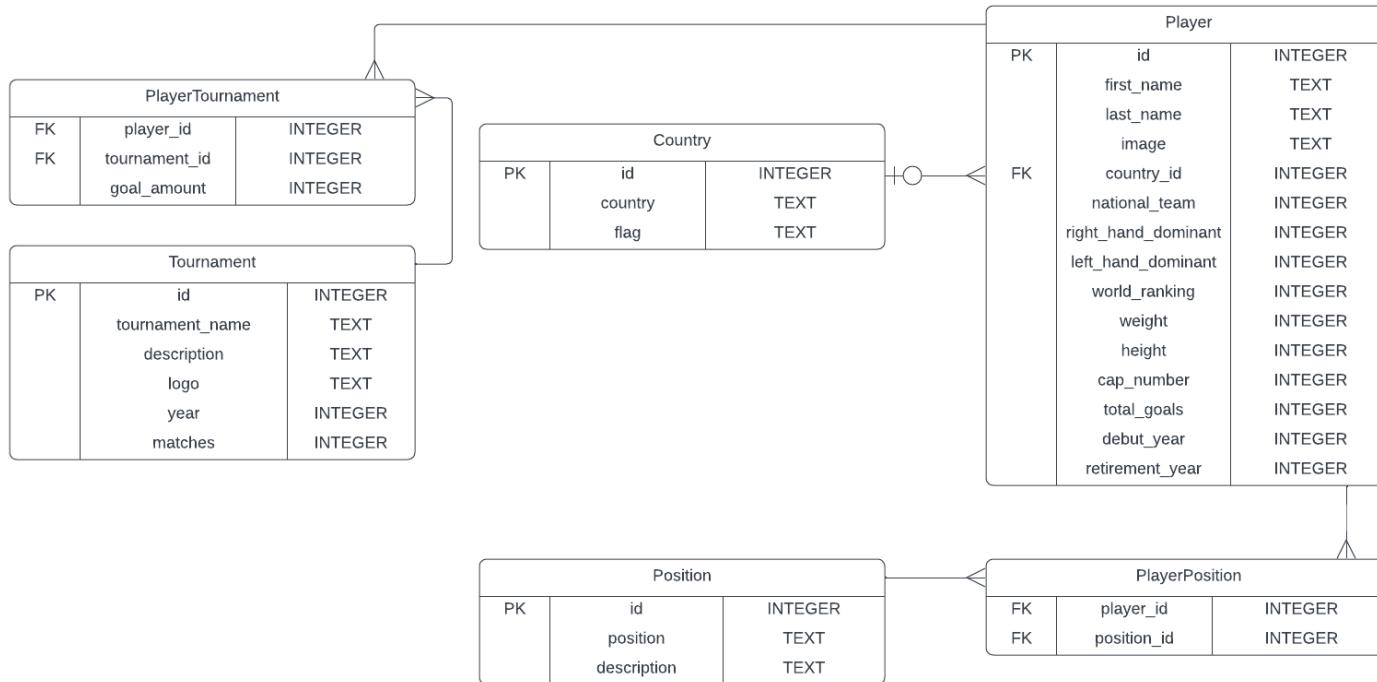
While designing the 'tournament' pages for the website I wanted to include the country that won the specific tournament each year. I then came back and refined the ER diagram to have the 'country' table interacting with the 'tournament' table but this created a very complicated relationship. Therefore I am disregarding the idea and using ER diagram #4 instead.

Waterpolo Players - ER Diagram



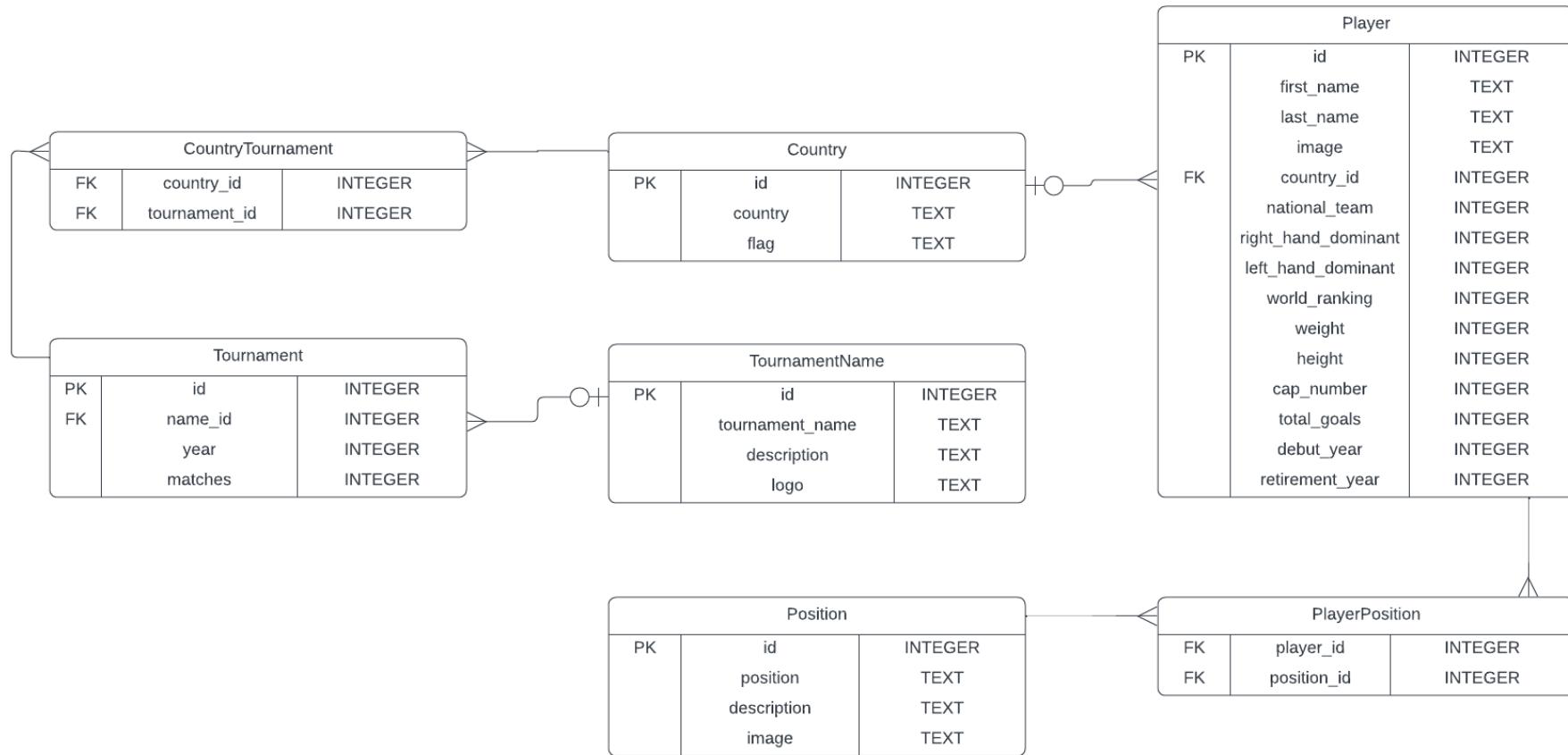
Linked the different tournaments to the gender table as each tournament has male and female editions. This creates a very complex ER diagram.

Female Waterpolo Players - ER Diagram



Needed to limit the data entries in the database so I changed the concept to just female water polo players. That limits the number of tournaments, players and countries that I need to add to the database. This is not only more feasible for me to be able to achieve while making the database but it also refines the purpose and makes it easier for the user to interact with.

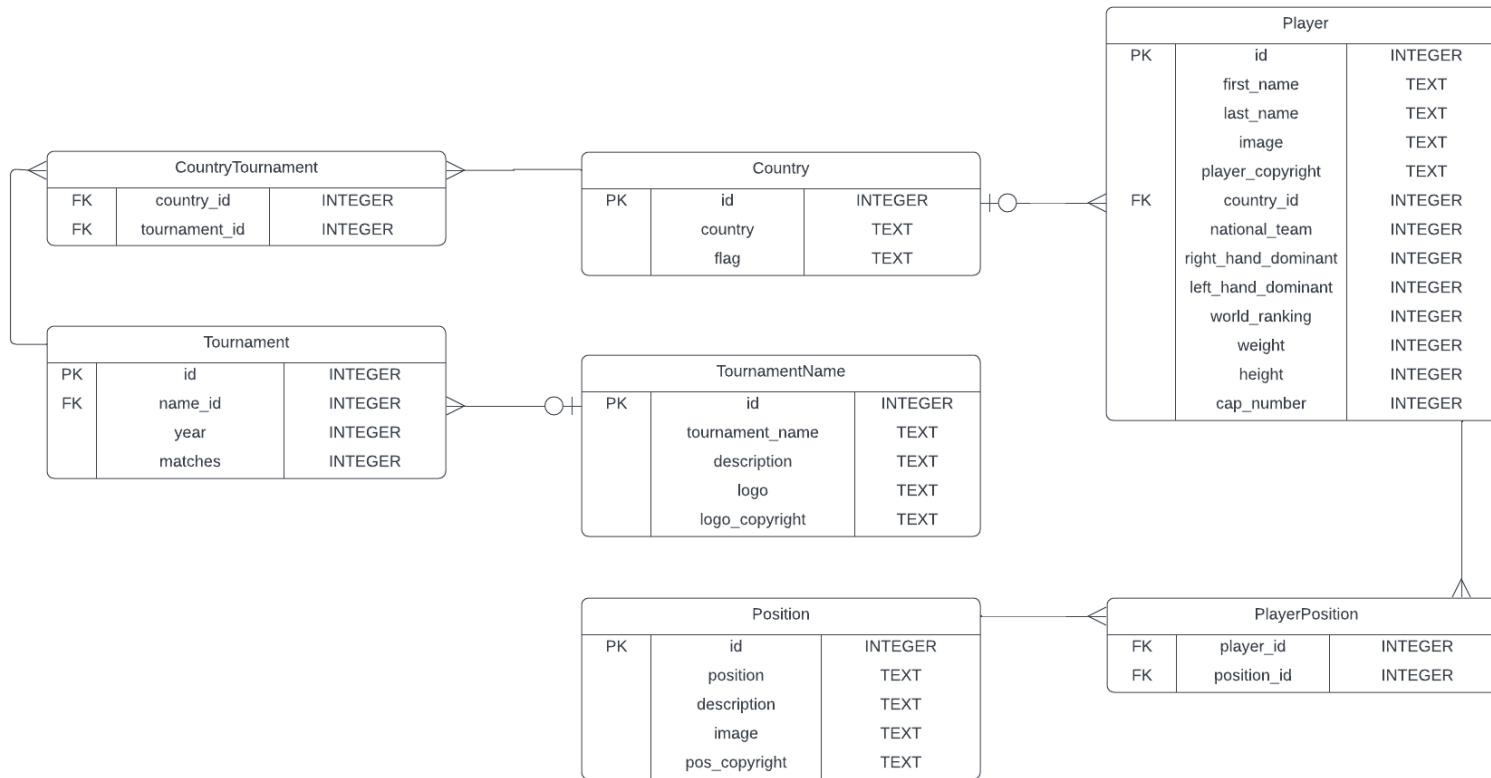
Female Waterpolo Players - ER Diagram



Changed the ER diagram so that tournament names and years were able to be split apart in the query. The country table was then changed to branch onto the tournament table (instead of the player table) to save time on entering data.

ER Diagram #9 (19/09/2023)

Female Waterpolo Players - ER Diagram



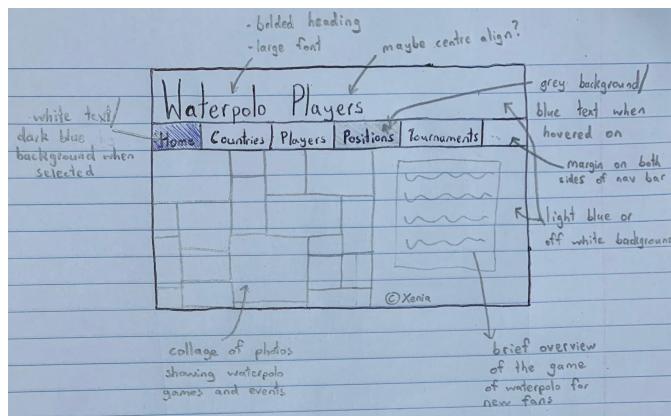
I got rid of some of the values in the player table because I thought they were unnecessary bits of information. I decided that the purpose of the website is for the user to see information about how players, countries, positions and tournaments relate to each other, without all the overwhelming statistics.

I also added columns so that the images in the database are linked with their copyright information and licence, so that I successfully address the legal implication of using other people's images on my website.

Initial Website Layout and Design Ideas

Home Page:

Design 1:

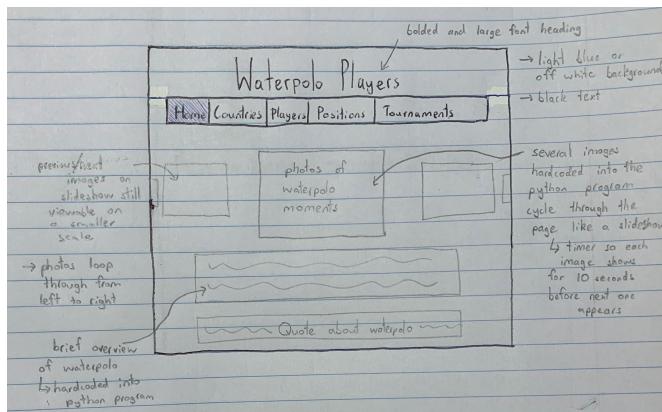


I like how this homepage has lots of photos but I think the collage will become too chaotic.

I like the idea of how the navigation bar changes colour when hovered or clicked on.

The title would look better aligned in the centre of the page.

Design 2:



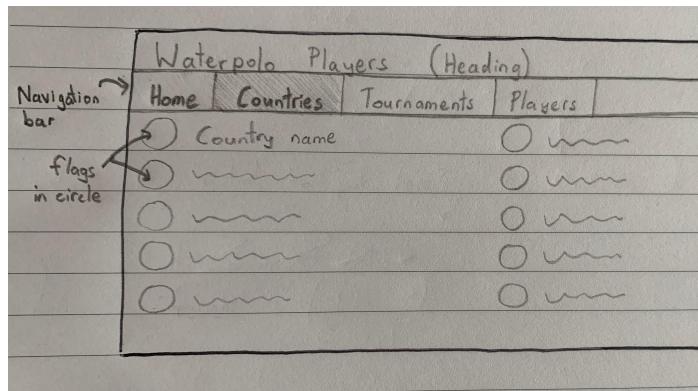
I like this design better because it is less cluttered and more organised than the collage. I think it is important for the home page to look organised because it gives the user the best first impression.

I like the look of the slideshow of images rotating through because it is different and attracts attention from the user.

I also like the centre aligned title more.

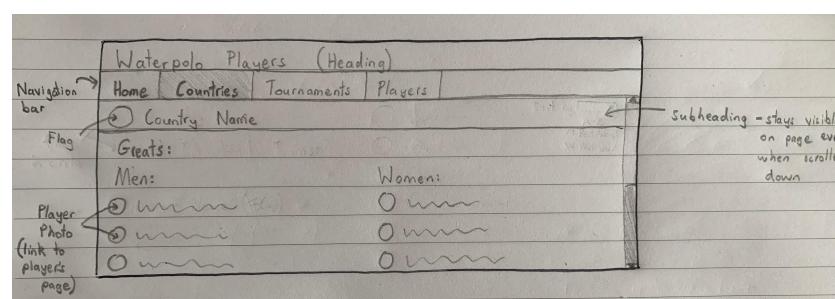
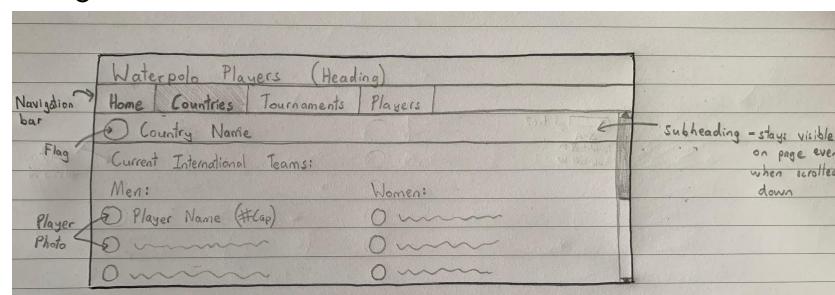
All Countries Page:

Design:



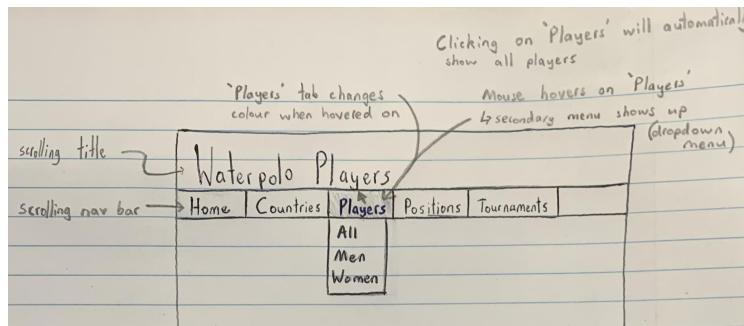
Individual Country Page:

Design:



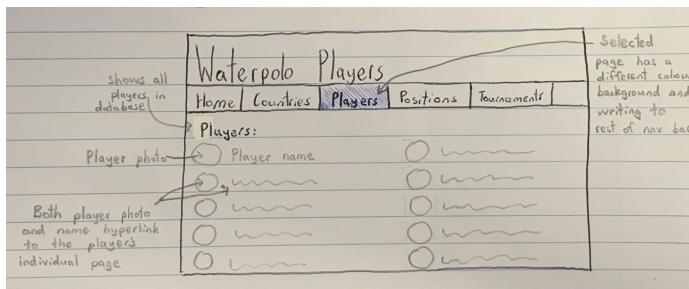
Players Navigation Bar:

Edit to Nav bar: (not being used now that the website is only about women's water polo)

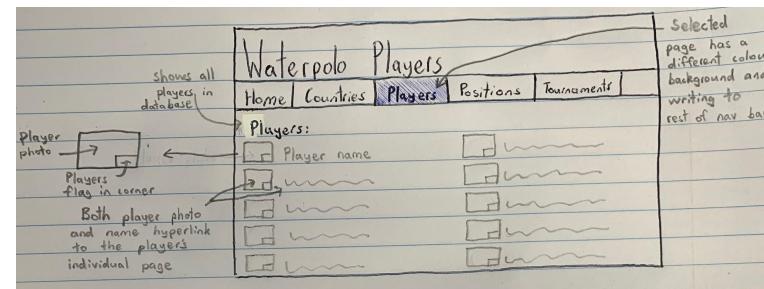


All Players Page:

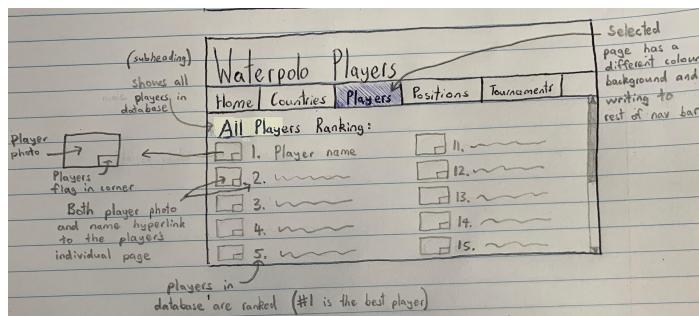
Design 1:



Design 2:



Design 3: (Chosen Design)



Individual gender players pages:

I then took design 3 (of 'all players') and slightly modified it for the pages where just the male and just the female players are shown.

The difference is that only one gender is shown per page and the rankings next to each name (that indicate the order the players are listed in) are gender rankings instead of world rankings.

Female Variation ↓ (only one used now)

Waterpolo Players

Selected page has a different colour background and writing to rest of nav bar

(subheading) shows all female players in database

Home Countries **Players** Positions Tournaments

Female Players Ranking:

1. Player name	11. ~~~
2. ~~~	12. ~~~
3. ~~~	13. ~~~
4. ~~~	14. ~~~
5. ~~~	15. ~~~

Player photo → [] ←
Players flag in corner
Both player photo and name hyperlink to the players individual page

female players in database are ranked (#1 is the best player)

Male Variation ↓

Waterpolo Players

Selected page has a different colour background and writing to rest of nav bar

(subheading) shows all male players in database

Home Countries **Players** Positions Tournaments

Male Players Ranking:

1. Player name	11. ~~~
2. ~~~	12. ~~~
3. ~~~	13. ~~~
4. ~~~	14. ~~~
5. ~~~	15. ~~~

Player photo → [] ←
Players flag in corner
Both player photo and name hyperlink to the players individual page

male players in database are ranked (#1 is the best player)

Individual Player Pages:

Design 1:

Waterpolo Players

Home Countries **Players** Positions Tournaments

Players Name:
[] Nationality

Positions: ~~~, ~~~
Cap No.: ~~~
Weight: ~~~ kg
Height: ~~~ cm

Action Shot
Caption

I find this layout quite boring because it is just listing slightly altered facts for each player's page.

Design 2: (Chosen one)

Waterpolo Players

Home Countries **Players** Positions Tournaments

Player's Name: [] World # ~~~
(Gender) # ~~~

Nationality
hyper links to country page

Plays/used to play for national team (debut/year - retirement year)
Dominant Hand: ~~~
Weight: ~~~
Height: ~~~
Total goals: ~~~ in career

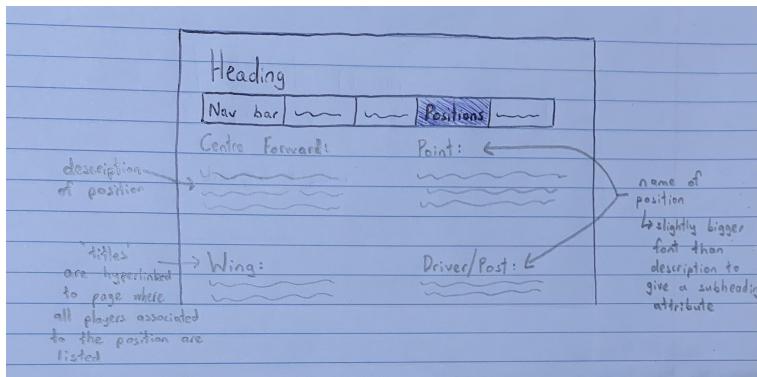
Action shot of player
Caption

image of player
Caption

hyperlinks to main positions page for descriptions
Positions: ~~~, ~~~
Cap number: # ~~~

All Positions Page:

Design 1:

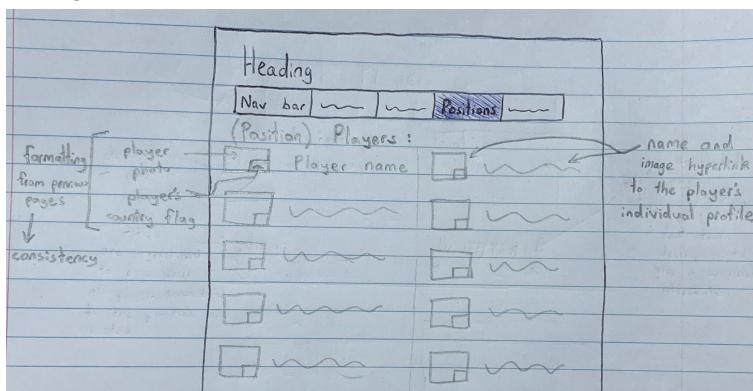


Design 2: (Chosen one)



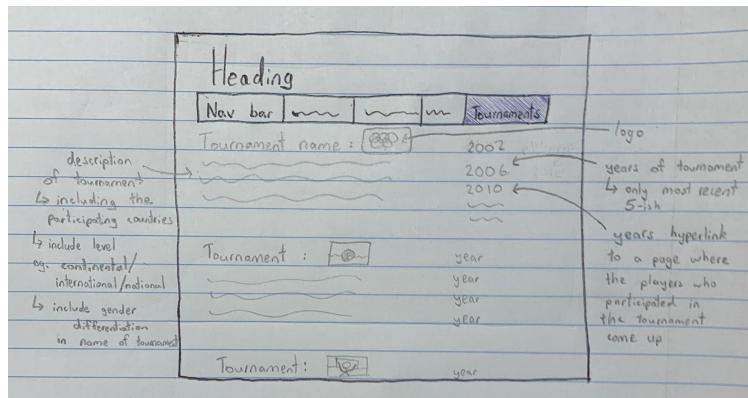
Individual Position Page:

Design:



All Tournaments Page:

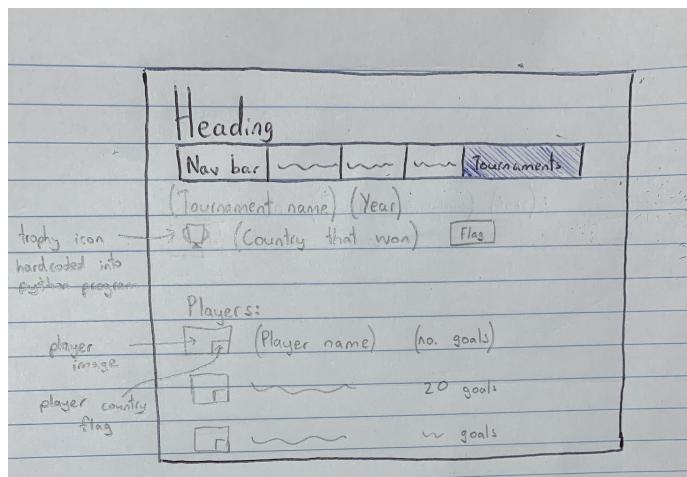
Design:



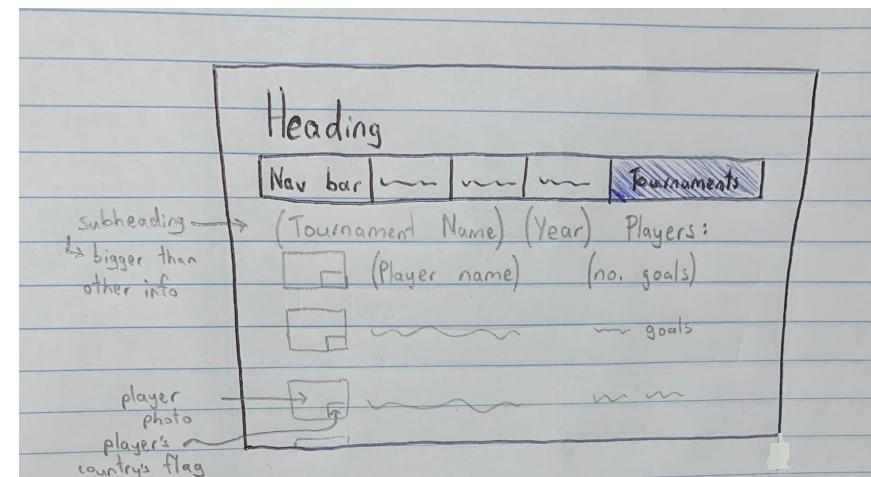
Individual Tournament Page:

Design 1:

(too difficult - corresponds to the difficult ER diagram #5)



Design 2: (Chosen one)



Aesthetics Aspects:

Fonts:

Century Gothic → Use for title

Comic Sans MS → Use for body text

→ Simple and readable

Routes / Function Signatures for each page (OLD → used when the project still included both men and women)

```
@app.route('/')
def home():
```

```
@app.route('/countries')
def countries():
```

```
@app.route('/country/<int:id>')
def indiv_country(id):
```

```
@app.route('/players')
def players():
```

```
@app.route('/player/<int:id>')
def indiv_player(id):
```

```
@app.route('/tournaments')
def tournaments():
```

```
@app.route('/tournament/<int:id>')
def indiv_tournament(id):
```

```
@app.route('/positions')
def positions():
```

```
@app.route('/position/<int:id>')
def indiv_position(id):
```

```
@app.route('/men')
def men():
```

```
@app.route('/women')
def women():
```

Routes / Function Signatures for each page (fixed for #7 (and onwards) ER diagram)

<pre>@app.route('/') def home():</pre>	<pre>@app.route('/tournaments') def tournaments():</pre>
<pre>@app.route('/countries') def countries():</pre>	<pre>@app.route('/tournament/<int:id>') def indiv_tournament(id):</pre>
<pre>@app.route('/country/<int:id>') def indiv_country(id):</pre>	<pre>@app.route('/positions') def positions():</pre>
<pre>@app.route('/players') def players():</pre>	<pre>@app.route('/position/<int:id>') def indiv_position(id):</pre>
<pre>@app.route('/player/<int:id>') def indiv_player(id):</pre>	

(Got rid of the men and women routes as my database will just be female athletes and competitions.)

Feedback from a Stakeholder:

Date	Stage of Project	Person who gave Feedback	Feedback	Did I use the feedback?	Comment
20/05/23	Before iteration 1	Saissha (Classmate)	Saissha suggested narrowing down the contents of the website to just cover female water polo players.	Yes	I changed my routes plan and ER diagram (#7 and beyond)
16/09/23	During iteration 5	Karin (Mother)	She suggested changing the colours of the website to the blue colours featured in the watery background so that the aesthetic wasn't too chaotic.	Yes	Very important for adding interest for the user → impacts the aesthetic relevant implication
17/09/23	After	Uli	He suggested to change the title	Yes	The title makes more sense

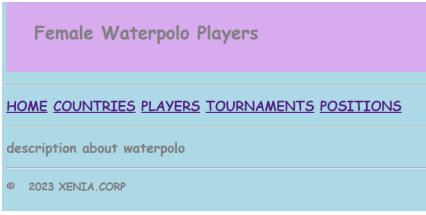
	iteration 5 (Father)	<p>for the 'indiv_position' route: Eg.</p> <p>Goalkeeper Players should be 'Goalkeeper' instead</p>		and is easier for the user to read (usability) Eg. Goalkeeper
		<p>A page with just flags (countries and tournaments page) should have smaller flags so less scrolling is required. This would also provide a better immediate overview.</p>	Yes	
		<p>Would like to know the winner of the tournament on the individual tournament page.</p>	No	Would be helpful but I need to focus on the functionality of the site.
		<p>Add page titles so the user can see what the meaning of the content on the page is</p>	Yes	<p>Eg.</p> 
		<p>Make flags smaller on individual player pages and individual country pages, to draw attention to the other information.</p>	Yes	<p>Eg.</p> 
		<p>Doesn't like Comic Sans font</p>	No	

Iteration 1:

Create a sample database with all the tables and a few pieces of sample data.

Create all the routes from the nav bar and make sure they lead to the correct main page.

Testing Table:

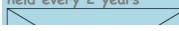
Test	What should it do?	Improvement	Did it work?	What went wrong/is missing?	Result
Clicked on the 'Home' tab on the navigation bar	'/' route should connect to the 'home.html' layout and display the hard coded text.		Yes	Hard coded text needs to be evolved from "description about water polo" in future iteration.	
Clicked on the 'Countries' tab on the navigation bar	'/countries' route should connect to the 'countries.html' layout. This should show all the countries' names in the database with the corresponding flag shown alongside the name.	<p>Created a template called 'countries.html'. Used the following SQL query in the 'countries' route:</p> <pre>SELECT * FROM Country;</pre> <p>Formatted the results:</p> <pre><h2> {{item[1]}}
 </h2> </pre>	Yes	The rest of the countries flags will be entered during iteration 4.	

<p>Clicked on the 'Players' tab on the navigation bar</p>	<p>'/players' route should connect to the 'players.html' template. Should list all the player's name, photo and country's flag in the database.</p>	<p>SQL query tried:</p> <pre>SELECT Player.id, Player.first_name, Player.last_name, Player.image, Country.flag FROM Player Join Country ON Player.country_id=Country_id WHERE Player.id = ?;</pre>	<p>No</p>	<p>Wrong SQL query → showing the player's (Edina Gangl with id=1) name and photo with each different country flag in the country table</p>	
		<p>SQL query tried:</p> <pre>SELECT Player.id, Player.first_name, Player.last_name, Player.image, Country.flag FROM Player JOIN Country ON Player.country_id=Country.id;</pre>	<p>Yes</p>	<ul style="list-style-type: none"> - I needed to get rid of the where statement in the query because I wanted a list not a singled out result - I needed to change Country_id to Country.id 	
	<p>The players with a world ranking should also have their ranking shown next to their name</p>	<p>SQL query tried:</p> <pre>SELECT Player.id, Player.first_name, Player.last_name, Player.image, Player.world_ranking, Country.flag FROM Player JOIN Country ON Player.country_id=Country.id;</pre>	<p>No</p>	<p>The world ranking didn't get listed with the player and the flag disappeared. The template didn't accommodate the extra value being generated.</p>	
		<p>Rearranged the numbers in the {{item[?]}} variables (within the 'players.html') and also kept in mind that some of the values are links or images.</p>	<p>No</p>	<p>The correct variables all show up but the players without a world ranking have 'None' written next to them.</p>	

	<p>Split the SQL query into two separate queries and fetching variables. I used the 'IS NULL' and 'IS NOT NULL' conditions to differentiate and filter out the "None" output values.</p> <pre>cur.execute('SELECT Player.id, Player.first_name, Player.last_name, Player.image, Player.world_ranking, Country.flag FROM Player Join Country ON Player.country_id=Country.id WHERE Player.world_ranking IS NOT NULL;') ranked_players = cur.fetchall() cur.execute('SELECT Player.id, Player.first_name, Player.last_name, Player.image, Country.flag FROM Player Join Country ON Player.country_id=Country.id WHERE Player.world_ranking IS NULL;') players = cur.fetchall()</pre>	Yes	The ranking number should have context.	<table border="1"> <thead> <tr> <th>HOME</th> <th>COUNTRIES</th> <th>PLAYERS</th> <th>TOURNAMENTS</th> <th>POSITIONS</th> </tr> </thead> <tbody> <tr> <td></td> <td></td> <td>Maggie Steffens 1</td> <td></td> <td></td> </tr> <tr> <td></td> <td></td> <td>Edina Gagni</td> <td></td> <td></td> </tr> </tbody> </table>	HOME	COUNTRIES	PLAYERS	TOURNAMENTS	POSITIONS			Maggie Steffens 1					Edina Gagni		
HOME	COUNTRIES	PLAYERS	TOURNAMENTS	POSITIONS															
		Maggie Steffens 1																	
		Edina Gagni																	

		<p>Slightly altered 'players.html' template:</p> <pre>{% for item in ranked_players % <h2> {{item[1]}} {{item[2]}}
 Female World #{{item[4]}} </h2> </pre>	Yes	The ranking number is shown as "Female World #" and players without a number don't display it.	 Maggie Steffens Female World #1
--	--	---	-----	--	--

Clicked on 'Tournaments' tab on the navigation bar	'/tournaments' route connects to the 'tournaments.html' template. Shows the tournament names and their descriptions and logo underneath.		No	TemplateNotFound error	
		<p>Created a template called 'tournaments.html'</p> <p>SQL query tried: SELECT * FROM Tournament;</p>	No	Printed out all the tournament names multiple times without the years (so there were a lot of double ups)	
		<p>SQL Query tried: SELECT DISTINCT tournament_name, description, logo FROM Tournament;</p>	No	The logos were printed as link texts (how they are stored in the database)	

	<p>Changed the formatting in the 'tournaments.html' template for the logo link to be converted into an image:</p> <pre></pre>	Yes	<p>Each tournament was only printed out once (despite it reoccurring in the database) and the correct logo was printed once alongside the correct name.</p> <p>The next test should have an improved SQL query that also prints out the years under the correct tournament as links.</p>	<p>FINA Women's Water Polo World Cup established 1979</p>  <p>Women's Water Polo at the Summer Olympics held every 4 years</p>  <p>Women's Water Polo at the World Aquatics Championships held every 2 years</p> 
The years of the tournaments showing next to the tournament name as hyperlinks.	<p>Added a second SQL query, called it separately and then returned it in the template:</p> <pre>cur.execute('SELECT year FROM Tournament;') years = cur.fetchall() return render_template("tournaments.html", tournaments=tournaments, years=years, title="Waterpolo Players")</pre> <p>Formatted it in the 'tournaments.html' template as a different variable:</p> <pre>{% for item in years %} <h2> {{item[0]}} {% endfor %}</pre>	No	<p>It just displayed the first SQL query with the tournament name, description and logo, and then showed all the different years from the second SQL query underneath.</p>	
	Made a function that takes the tournament name from the original query and then should	No	<p>InterfaceError</p> <p><small>sqlite3.InterfaceError: Error binding parameter 0 - probably unsupported type.</small></p> <p>Error message.</p>	

select all the years that match that tournament name.

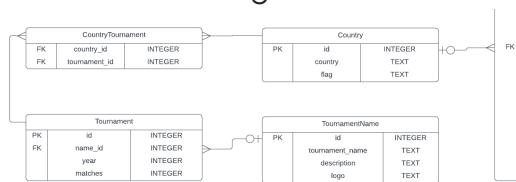
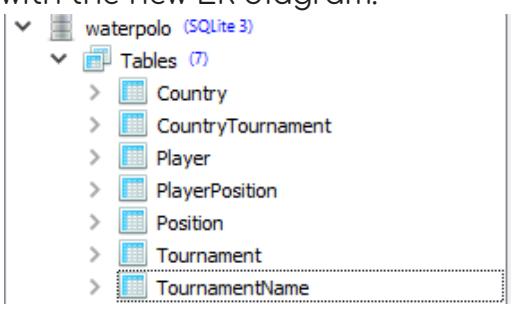
```
def year(tournaments):
    conn =
    sqlite3.connect('waterpolo.db')
)
    cur = conn.cursor()
    cur.execute('SELECT
tournament_name, year FROM
Tournament WHERE
tournament_name=?',
(tournaments,))

@app.route('/tournaments')
def tournaments():
    conn =
    sqlite3.connect('waterpolo.db')
)
    cur = conn.cursor()
    cur.execute('SELECT
DISTINCT tournament_name FROM
Tournament;')
    tournaments =
cur.fetchall()

    year(tournaments) # calls
function

    years = cur.fetchall()
```

The layout of the tables in the ER diagram and SQL database need to be changed because there is an additional many to many relationship (between years and tournaments).

		<pre> return render_template("tournaments.html", tournaments=tournaments, years=years, title="Waterpolo Players") </pre>		
		<p>Changed the ER diagram so that tournament names and years were able to be split apart in the query. The country table was then changed to branch onto the tournament table (instead of the player table) to save time on entering data. (See ER diagram #8 for entire version)</p> <p>Here is the change:</p>  <p>I then altered the tables in the SQLite database to match up with the new ER diagram:</p> 	Yes	<p>Printed out each distinct tournament name, description and logo. Underneath each tournament the years of that tournament in the database are displayed.</p> <p>FINA Women's Water Polo World Cup Established 1979</p>  <p>2018 2023</p> <p>Women's Water Polo at the Summer Olympics Held every 4 years</p>  <p>2020 2016</p>

Changed the queries in the route to select the correct, new table names and columns.
Also added a 'for loop' to cycle through all the years that had the same tournament name:

```
@app.route('/tournaments')
def tournaments():
    conn =
    sqlite3.connect('waterpolo.db')
)
    cur = conn.cursor()
    cur.execute('SELECT
DISTINCT name_id FROM
Tournament')
    tid = cur.fetchall()
    tournaments =[]
    for name in tid:
        cur.execute('SELECT
Tournament.year,
TournamentName.tournament_name
, TournamentName.description,
TournamentName.logo FROM
Tournament JOIN TournamentName
ON
Tournament.name_id=TournamentN
ame.id WHERE
Tournament.name_id=?', (name))
        tournament =
        cur.fetchall()
```

```
tournaments.append(tournament)
    return
render_template("tournaments.html",
tournaments=tournaments,
title="Waterpolo Players")
```

Changed formatting in
'tournaments.html' template:

```
{% for tournament in
tournaments %}
    <h2>{{tournament[0][1]}}
<br> {{tournament[0][2]}} <br>
<img src =
"{{tournament[0][3]}}"/> </h2>
    {% for year in tournament
%}
        {{year[0]}}<br>
    {% endfor %}
{% endfor %}
```

		<p>Made the years appear as links:</p> <pre>% for year in tournament % {{year[0]}}
 % endfor %</pre>	Yes	<p>The link needs to lead to the correct page.</p> <p>Currently shows an error, which will be addressed in the next iteration where the individual tournament page will be made:</p> <p>TemplateNotFound</p> <p>jinja2.exceptions.TemplateNotFound: _____</p>	<p>FINA Women's Water Polo World Cup Established 1979</p>  <p>PLACEHOLDER</p> <p>2018 2023</p> <p>Women's Water Polo at the Summer Olympics Held every 4 years</p>  <p>2020 2016</p>
Clicked on the 'Positions' tab on the navigation bar	/positions' route connects to the 'positions.html' template. Should list the name of the position, position number (saved as id in the database), image and description.	<p>Created a template called 'positions.html'</p> <p>SQL query tried:</p> <pre>SELECT * FROM Position;</pre> <p>Added an 'image' column in the 'Position' table to the SQL database. Also added an 'image' column on the ER diagram in the 'Position' table because I left it out. Inserted some images into the 'Position' table in the database. Changed formatting in the 'positions.html' template to:</p> <pre><h2> {{item[1]}}
 </h2></pre>	No No Yes	<p>TemplateNotFound error</p> <p>Printed out all the position names with the id (position number) and description but didn't show a photo.</p> <p>Printed out all the correct information needed.</p>	

	<pre>Position #{{item[0]}}
 {{item[2]}} </pre>			
Images used on the all positions page should address any copyrights and legal implications	<p>Added a 'pos_copyright' column in the 'Position' table to the SQL database.</p> <p>Also added a 'pos_copyright' column on the ER diagram in the 'Position' table.</p> <p>These steps link the copyright licence to the image if the licence requires a citing.</p> <p>Inserted the copyrights into the database, after researching the legal implications for each image in the 'Position' table.</p> <p>Changed the formatting in the 'positions.html' template to:</p> <pre><h2> {{item[1]}}
 </h2> Position #{{item[0]}}
 {{item[2]}}

 <caption>{{item[4]}}</caption></pre>	Yes	<p>Printed out the citation for the copyright/permission for use as a caption to the image.</p>	 <p>The screenshot shows a section of a website dedicated to water polo positions. It includes links for 'HOME', 'COUNTRIES', 'PLAYERS', 'TOURNAMENTS', and 'POSITIONS'. Below these are two entries: 'Left Wing' and 'Left Driver'. Each entry contains a small thumbnail image, a position number, a brief description, and a copyright notice. The 'Left Wing' entry includes a link to the original Commons image source.</p>

Iteration 2:

Create all the routes and templates to the individual pages (that branch off from the navigation bar pages) and make sure they function properly and show the correct information.

Address legal implications of including pictures of waterpolo (on the positions page) by creating a column in the position table (called pos_copyright) in the database to accommodate citations. (And continue getting permission to use images).

Testing Table:

Test	What should it do?	Improvement	Did it work?	What went wrong/is missing?
Clicked on a country in the 'Country' tab	<p>'indiv_country' function connects to the 'country.html' template.</p> <p>Should print the country name and flag at the top of the page. Underneath, each player's first name, last name and photo should be displayed if they play (or played) for that specific country.</p> <p>Each player should have either the value '1' or '0' printed alongside their image and name, which signifies if they are a part of the 'national_team'.</p>	<p>Created a new route:</p> <pre>@app.route('/country/<int:id>') def indiv_country(id): conn = sqlite3.connect('waterpolo.db') cur = conn.cursor() cur.execute('SELECT * FROM Country WHERE id = ?', (id,)) country = cur.fetchone() return render_template("country.html", country=country, title="Waterpolo Players")</pre> <p>Created a new html file named 'country.html'</p> <hr/> <p>The output I received on my website:</p> <pre>(1, 'Hungary', '/static/images/hungary.jpg')</pre>	No	<p>Country id was printed and it shouldn't have been. The flag didn't turn into an image and stayed as a link.</p> <p>The players linked to the country didn't output.</p>
		<p>Added a new SQL query in 'routes.py' and returned the variable in the template:</p> <pre>cur.execute('SELECT first_name, last_name, image, national_team FROM Player WHERE country_id = ?', (id,)) country_players = cur.fetchall()</pre> <p>Changed the formatting in the 'country.html':</p> <pre>{% extends "layout.html" %} {% block content %}</pre>	No	<p>UndefinedError</p> <pre>jinja2.exceptions.UndefinedError: 'item' is undefined</pre> <p>I need to improve the code in the 'country.html' template so that 'item' contains a variable</p>

	<pre> {{country}} {{item[1]}} {{item[3]}} {{item[4]}} {{item[5]}} {% endblock %} </pre>		
	<p>Replaced <code>{{country}}</code> in the 'country.html' template with:</p> <pre> {% for item in country %} <h2> {{item[1]}} </h2>
 {% endfor %} {% for item in country_players %} <h2> {{item[0]}} {{item[1]}}
 {{item[3]}} </h2> {% endfor %} </pre>	No	<p>The screenshot shows a list of players. At the top, there are two small icons: a blue 'u' and a green 's'. Below them is a section for 'Edina Gangl' featuring a photo of a woman in a blue swimsuit standing by a pool, with the number '1' next to it. Below that is another section for 'Dorottya Szilágyi' with a photo of a woman's head.</p> <p>The second part of the sql query that prints the players that belong to that country works but the first query doesn't work because the output produced isn't wanted. In the above screenshot, it should print 'Hungary' and its flag but instead it prints the letters 'u' and 's' and 2 empty image icons.</p>

	<p>Changed the line below the first query to be: <code>country = cur.fetchall()</code> (instead of <code>country = cur.fetchone()</code>)</p>	Yes	<p>Hungary</p>  <p><u>Edina Gangl</u> </p> <p><u>Dorottya Szilágyi</u> </p> <p>1</p>
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			<p>HOME COUNTRIES PLAYERS ></p> <p>United States</p>  <p>Maggie Steffens</p>  <p>© 2023 XENIA.CORP</p>
The number (either '1' or '0') is converted into writing ('Current National Team' or 'Past National Team')	<p>Split into two separate queries for current and former national team players:</p> <pre>cur.execute('SELECT first_name, last_name, image, national_team, player.id FROM Player WHERE country_id = ? AND national_team = 1', (id,)) national_team = cur.fetchall() cur.execute('SELECT first_name, last_name, image, national_team, player.id</pre>	No	Repeats the heading of 'Current National Team' and 'Former National Team'. Should have the heading and then all the players that fit to that group listed underneath.

```
FROM Player \
      WHERE country_id = ? AND
national_team = 0', (id,))
      former_team = cur.fetchall()
```

(And then returned all the variables in the 'country.html' render template)

Formatted results in 'country.html' template:

```
{% for item in national_team %}
    <h2> National Team: <br>
    <a href = "/player/{{item[4]}}">
{{item[0]}} {{item[1]}} <br> <img src =
"{{item[2]}}"/></a> </h2> <br/>
{% endfor %}

{% for item in former_team %}
    <h2> Former Team: <br> {{item[0]}}
{{item[1]}} </h2> <img src
="{{item[2]}}"/><br/>
{% endfor %}
```

Hungary



Current National Team:

Edina Gangl



Current National Team:

Dorottya Szilágyi



	<p>Put the heading outside the loop in the 'country.html' template:</p> <pre><h2> Current National Team:
 </h2> {% for item in national_team %} <h2> {{item[0]}} {{item[1]}}
 </h2>
 {% endfor %} <h2> Former Team Members:
 </h2> {% for item in former_team %} <h2> {{item[0]}} {{item[1]}}
 </h2>
 {% endfor %}</pre>	Yes	<p>Hungary</p>  <p>Current National Team:</p> <p>Edina Gangl</p>  <p>Dorottya Szilágyi</p> 
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				 <p>Former Team Members:</p> <p>Patrícia Horváth</p> 
Clicked on a player in the 'Player' tab	<p>'indiv_player' function connects to the 'player.html' template.</p> <p>Should show the name, weight, height and cap number of the player, the country name and flag of the team they play for, whether they are currently playing internationally or not and their dominant hand.</p>		No	<p>TemplateNotFound</p> <p><code>jinja2.exceptions.TemplateNotFound: __</code></p>
		<p>Created a template called 'player.html' and a route:</p> <pre>@app.route('/player/<int:id>') def indiv_player(id): conn = sqlite3.connect('waterpolo.db') cur = conn.cursor() return render_template("player.html", title="Waterpolo Players")</pre>	No	No error shown, but only a blank page is shown on the website.

	<p>Added an SQL query to the route and returned it in the template:</p> <pre>cur.execute('SELECT * FROM Player WHERE id = ?', (id,)) player = cur.fetchall() return render_template("player.html", player=player, title="Waterpolo Players")</pre> <p>Formatted the results from the query in the 'player.html' template:</p> <pre>{% for item in player %} <h2> {{item[1]}} {{item[2]}} {{item[4]}} {{item[5]}} {{item[6]}} {{item[7]}} {{item[8]}} </h2> {% endfor %}</pre>	No	 <p>Maggie Steffens USA 8 1 1 0 1</p> <p>It printed all the information linked to the player from the 'Player' database. The SQL query needs to be developed to join other tables and interpret the numbers.</p>
	<p>Updated SQL query:</p> <pre>cur.execute('SELECT Player.first_name, Player.last_name, Player.image, Player.weight, Player.height, Player.world_ranking, Player.cap_number, Player.total_goals, Country.country, Country.flag FROM Player JOIN Country ON Player.country_id=Country.id WHERE Player.id = ?', (id,))</pre> <p>Formatted results from query:</p> <pre><h2> {{item[0]}} {{item[1]}} {{item[3]}} {{item[4]}} {{item[5]}} {{item[6]}} {{item[7]}}
 {{item[8]}} </h2></pre>	No	 <p>Maggie Steffens USA 75 173 1 6 None</p> <p>United States</p> <p>Not all the information is featured in the query and the formatting is bad.</p>

	<p>Altered SQL statement:</p> <pre>cur.execute('SELECT Player.first_name, Player.last_name, Player.image, Player.weight, Player.height, Player.world_ranking, Player.cap_number, Country.country, Country.flag FROM Player JOIN Country ON Player.country_id=Country.id WHERE Player.id = ?', (id,))</pre> <p>Changed formatting in 'player.html' template so that information is more readable and certain integers are processed into phrases:</p> <pre>{% for item in player %} <h2> {{item[0]}} {{item[1]}}

 {{item[0]}} {{item[1]}} plays waterpolo for {{item[7]}} National Waterpolo Team. She is {{item[4]}}cm tall and weighs {{item[3]}}kg.
 {% if item[5] %}
 She is ranked #{{item[5]}} out of the best 10 female waterpolo players in the world.
 {% endif %}</pre>	No	 <p>Maggie Steffens plays waterpolo for United States National Waterpolo Team. She is 173cm tall and weighs 75kg.</p> <p>She is ranked #1 out of the best 10 female waterpolo players in the world.</p> <p>Most of the time she plays as cap number 6.</p>  <p>Processes whether a player is ranked in the top 10 female players in the world and prints out a statement if they are. (Uses an 'if' statement in the template with jinja.)</p>  <p>Edina Gagni plays waterpolo for Hungary National Waterpolo Team. She is 181cm tall and weighs 64kg.</p> <p>Most of the time she plays as cap number 1.</p>  <p>If a player isn't ranked in the top 10 (has a NULL value in that column) that sentence is left off.</p> <p>This jinja 'if' statement now needs to be implemented for the dominant hand columns.</p>
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	<pre>
 Most of the time she plays as cap number {{item[6]}}.
 {{item[7]}}
 </h2> {% endfor %} </pre>		
	<p>Added extra columns (dominant hands and national team) into the SQL query:</p> <pre> SELECT Player.first_name, Player.last_name, Player.image, Player.weight, Player.height, Player.world_ranking, Player.cap_number, Country.country, Country.flag, Player.right_hand_dominant, Player.left_hand_dominant, Player.national_team FROM Player JOIN Country ON Player.country_id=Country.id WHERE Player.id = ? </pre>	Yes	<p>Works for left handers:</p> <div style="background-color: #ADD8E6; padding: 10px;">  <p>Giulia Emmolo used to play waterpolo for the Spain National Waterpolo Team. She is 170cm tall and weighs 67kg. Most of the time she plays as cap number 9. Emmolo is left hand dominant.</p>  </div> <p>Works for right handers:</p> <div style="background-color: #ADD8E6; padding: 10px;">  <p>Edina Gangl currently plays waterpolo for the Hungary National Waterpolo Team. She is 181cm tall and weighs 64kg. Most of the time she plays as cap number 1. Gangl is right hand dominant.</p>  </div> <p>Works for ambidextrous players:</p> <div style="background-color: #ADD8E6; padding: 10px;">  <p>Pili Peña currently plays waterpolo for the Spain National Waterpolo Team. She is 174cm tall and weighs 61kg. Most of the time she plays as cap number 8. Peña is ambidextrous, meaning that she uses both her left and right hand equally well.</p>  </div>

		<p>Waterpolo Team.</p> <pre>{% endif %}</pre> <p>Added another 'if' statement in the 'player.html' template, that prints out different sentences depending on what hand the player predominantly uses:</p> <pre>{% if item[9] and item[10] %} {{item[1]}} is ambidextrous, meaning that she uses both her left and right hand equally well.
 {% elif item[9] %} {{item[1]}} is right hand dominant.
 {% else %} {{item[1]}} is left hand dominant.
 {% endif %}</pre>	
--	--	---	--

Clicked on a tournament in the 'Tournament' tab	'indiv_tournament' function connects to the 'tournament.html' template.	<pre>@app.route('/tournament/<int:id>') def indiv_tournament(name_id, year): conn = sqlite3.connect('waterpolo.db') cur = conn.cursor() cur.execute('SELECT TournamentName.tournament_name, TournamentName.description, TournamentName.logo, \ Tournament.name_id, Tournament.year, Tournament.matches FROM Tournament \\\'</pre>	No	<p>Route doesn't accommodate the variables needed:</p> <p> 127.0.0.1:5000/tournament/1</p> <p>TypeError</p> <pre>TypeError: indiv_tournament() got an unexpected keyword argument 'id'</pre>
---	---	---	----	---

tournament.

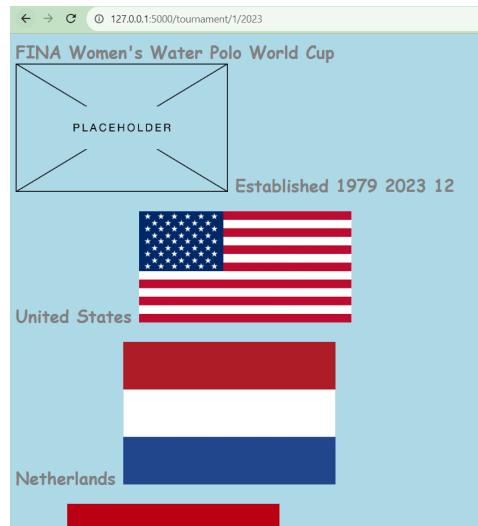
```
        JOIN TournamentName ON
Tournament.name_id=TournamentName.id \
        WHERE Tournament.name_id =
? AND Tournament.year = ?', (name_id,
year,))
    event = cur.fetchall()
    cur.execute('Country.id,
Country.country, Country.flag,
Tournament.name_id, Tournament.year FROM
CountryTournament \
        JOIN Country ON
CountryTournament.country_id=Country.id \
        JOIN Tournament ON
CountryTournament.tournament_id=Tournament.
id \
        WHERE Tournament.name_id =
? AND Tournament.year = ?', (name_id,
year,))
    teams = cur.fetchall()
    return
render_template("tournament.html",
event=event, teams=teams,
                           title="Waterpolo
Players")
```

Template formatting:

```
{% for item in event %}
    <h2> {{item[0]}} {{item[1]}} <img src
="{{item[2]}}"> {{item[4]}} {{item[5]}}
```

	<pre></h2> {% endfor %} {% for item in teams % <h2> {{item[1]}} </h2> {% endfor %}</pre>		
	<p>Changed the variables used in the route:</p> <pre>@app.route('/tournament/<int:name_id>/<int:year>')</pre>	No	<p>① 127.0.0.1:5000/tournament/1</p> <p>Not Found</p> <p>The requested URL was not found on the server. If you entered the URL manually please check your spelling and try again.</p>
	<p>In 'tournaments.html' I changed the link that leads to the indiv_tournament page:</p> <p>Original:</p> <pre><a href = "/tournament/{{tournament[0][4]}}" {{year[0]}} </pre> <p>New:</p> <pre> {{year[0]}} </pre>	No	<p>① 127.0.0.1:5000/tournament/1/2018</p> <p>The link now processes the name_id and year of the tournament.</p> <p>However, I noticed that when I click on the second link down, the URL is the exact same (ends in /tournament/1/2018) when it should have the same name_id as the above example but a different year.</p> <p>Issue with the query in the route: OperationalError</p> <p>sqlite3.OperationalError: near "Country": syntax error</p>
	I changed the link leading from the 'tournaments.html' template to the	Yes	① 127.0.0.1:5000/tournament/1/2018

	<p>indiv_tournament route and 'tournament.html' template.</p> <pre> {{year[0]}} </pre>		<p>① 127.0.0.1:5000/tournament/1/2023</p> <p>① 127.0.0.1:5000/tournament/2/2020</p> <p>SQL query still doesn't work: OperationalError sqlite3.OperationalError: near "Country": syntax error</p>
	<p>Second query forgot the 'SELECT' statement at the beginning, so I added 'SELECT':</p> <pre>cur.execute('SELECT Country.id, Country.country, Country.flag, Tournament.name_id, \ Tournament.year FROM CountryTournament \ JOIN Country ON CountryTournament.country_id=Country.id \ JOIN Tournament ON CountryTournament.tournament_id=Tournament. id \ WHERE Tournament.name_id = ? AND Tournament.year = ? ', (name_id, year,))</pre>	Yes	<p>All the individual tournament pages work but the formatting isn't user friendly:</p> 



Changed formatting in 'tournament.html':

```
{% for item in event %}  
    <h2> {{item[4]}} {{item[0]}} <br> <img  
src ="{{item[2]}}"> <br> {{item[1]}} <br>  
Matches: {{item[5]}} </h2>  
{%- endfor %}  
  
{% for item in teams %}  
    <h2> {{item[1]}} <br> <img src  
="{{item[2]}}"> </h2>  
{%- endfor %}
```

Yes

Page looks more user friendly:

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Clicked on position in the 'Position' tab	<p>'indiv_position' function connects to the 'position.html' template.</p> <p>Page has a heading of *Position name* Players'. All the players who play that position are listed underneath together with their full name, image and country's flag.</p>	<p>Created a new route:</p> <pre>@app.route('/position/<int:id>') def indiv_position(id): conn = sqlite3.connect('waterpolo.db') cur = conn.cursor() cur.execute('SELECT * FROM Player_position WHERE id = ?', (id,)) position = cur.fetchall() return render_template("position.html", position=position, title="Waterpolo Players")</pre>	No	<p>OperationalError</p> <pre>sqlite3.OperationalError: no such table: Player_position</pre> <p>Need to fix the SQL query in the python route</p>
---	---	---	----	---

	<p>Created a new html file named position.html' and formatted the results of the sql query in it:</p> <pre>{% extends "layout.html" %} {% block content %} {% for item in position %} <h2> {{item[0]}} {{item[1]}} </h2> {% endfor %} {% endblock %}</pre>		
	<p>Changed SQL query in 'indiv_position' route:</p> <pre>cur.execute('SELECT * FROM PlayerPosition WHERE position_id = ?', (id,))</pre>	No	<p>Example output (when clicked on a certain position):</p> <p>22</p> <p>It gets the right information from the right table but it prints ids connected to other tables. To display the correct things on the page I need to advance the SQL query to join on to other tables.</p>

	<p>Added joins to SQL query in the 'indiv_position' route:</p> <pre>cur.execute('SELECT Position.position, Position.image, Position.pos_copyright, Player.first_name, Player.last_name, Player.image FROM PlayerPosition Join Player ON PlayerPosition.player_id=Player.id Join Position ON PlayerPosition.position_id=Position.id WHERE Position.id = ?', (id,))</pre> <p>Formatted the results in the 'position.html' template:</p> <pre>{% for item in position %} <h2> {{item[0]}} Players

 {{item[2]}}

 {{item[3]}} {{item[4]}}
 </h2> {% endfor %}</pre>	No	 <p>Left Driver Players</p> <p>Legado (https://www.flickr.com/photos/lima2, VARONES 05", https://creativecommons.org/licenses/by-sa/2.0/)</p>  <p>Dorottya Szilágyi</p>
			<p>Code works well for just one player but when another player is added, the top section (position name, image and copyright) repeats.</p>  <p>Left Driver Players</p>  <p>Legado (https://www.flickr.com/photos/lima2, VARONES 05", https://creativecommons.org/licenses/by-sa/2.0/)</p> <p>Vanda Vályi</p> <p>The SQL query probably needs to be split so that all the players are printed separately to the title.</p>

	<p>Split the SQL query into two variables (in the 'indiv_position' route::</p> <pre>cur.execute('SELECT Position.position, Position.image, Position.pos_copyright FROM Position WHERE Position.id = ?', (id,)) position = cur.fetchall() cur.execute('SELECT Player.first_name, Player.last_name, Player.image FROM PlayerPosition Join Player ON PlayerPosition.player_id=Player.id Join Position ON PlayerPosition.position_id=Position.id WHERE Position.id = ?', (id,)) position_players = cur.fetchall()</pre> <p>Formatted the new split query in the 'position.html' template:</p> <pre>{% for item in position %} <h2> {{item[0]}} Players

 {{item[2]}} </h2> {% endfor %} {% for item in position_players %} <h2> {{item[0]}} {{item[1]}}
 </h2> {% endfor %}</pre>	No	 <p>Left Driver Players</p> <p>Legado (https://www.flickr.com/photos/lima2019juegosVARONES_05, https://creativecommons.org/licenses/)</p>  <p>Dorottya Szilágyi</p> <p>Vanda Vályi</p> <p>The program displays everything the correct amount of times but it doesn't print the players country flag alongside their image.</p>
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	<p>Added to the second SQL query:</p> <pre>cur.execute('SELECT Player.first_name, Player.last_name, Player.image, country.flag FROM PlayerPosition Join Player ON PlayerPosition.player_id=Player.id Join Country ON Player.country_id=Country.id Join Position ON PlayerPosition.position_id=Position.id WHERE Position.id = ?', (id,))</pre> <p>Formatted the flag as an image in the 'position.html' template:</p> <pre>{% for item in position_players %} <h2> {{item[0]}} {{item[1]}}
 </h2> {% endfor %}</pre>	Yes	<p>Left Driver Players</p>  <p>Legado (https://www.flickr.com/photos/lima2019juegos/VARONES 05”, https://creativecommons.org/licenses/by/4.0/)</p> <p>Dorottya Szilágyi</p>   <p>Vanda Válvi</p>
--	--	-----	---

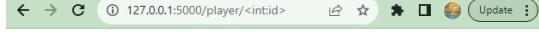
Iteration 3:

Link all the pages together and make a 404 page that shows if the URL entered doesn't exist.

Make a function that connects to the database and carries out the SQL query to avoid repeating code in each route.

Testing Table:

Test	What should it do?	Improvement	Did it work?	What went wrong/is missing?

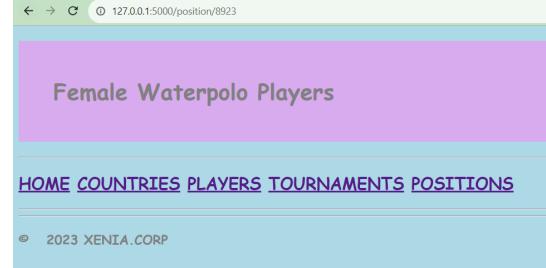
<p>Clicked on a link (of a country flag) from a specific players page</p> <p>eg.</p>  <p>Edina Gangl currently plays waterpolo 64kg. Most of the time she plays as cap. Gangl is right hand dominant.</p>	<p>Should display all the information about that country from the database.</p> <p>(should be the same result as from clicking on a country link straight from the 'countries' tab) (just another way to get to the same page)</p> <p>eg.</p> 	<p>Tried to link to the individual country page, by linking to the name of the individual country route, by adjusting the '{% for item in player %}' block in the 'player.html' template:</p> <pre> </h2> </pre>	<p>No</p>	 <p>Not Found</p> <p>The requested URL was not found on the server. If you entered the URL manually please check your spelling and try again.</p>
		<p>Had to add that the 'country.id' is queried in the SQL query so that I could use the item in the link:</p> <pre>cur.execute('SELECT Player.first_name, Player.last_name, Player.image, Player.weight, Player.height, Player.world_ranking, Player.cap_number, Country.country, Country.flag, Player.right_hand_dominant, Player.left_hand_dominant, Player.national_team, Country.id FROM Player JOIN Country ON Player.country_id=Country.id WHERE Player.id = ?', (id,)) player = cur.fetchall()</pre> <p>Changed link of the flag in the '{% for item in player %}' block in the 'player.html' template:</p> <pre> </h2> </pre>	<p>Yes</p>	 <p>Female Waterpolo Players</p> <p>HOME COUNTRIES PLAYERS TOURNAMENTS POSITIONS</p> <p>Hungary</p>  <p>National Team: Edina Gangl</p> <p>Successfully showed the individual country page, which the individual player belongs to.</p> <p>This linking technique can be applied for the other pages I need to link for this iteration.</p>

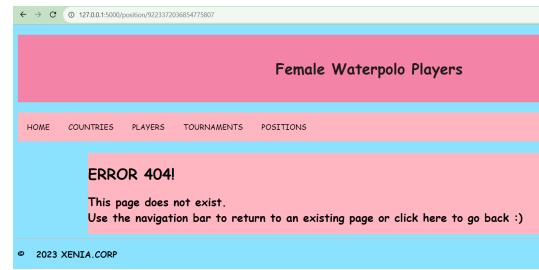
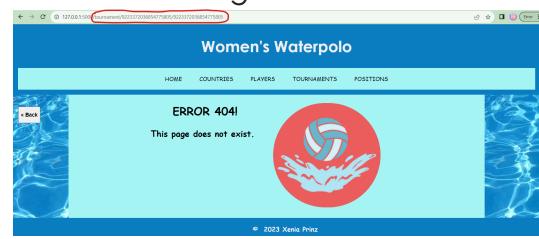
<p>Clicked on the link (of a players name) from a specific countries tab</p> <p>eg.</p> 	<p>Should display all the information about that specific player from the database.</p> <p>(should be the same result as from clicking on a players link straight from the players tab) (just another way to get to the same page)</p> <p>eg.</p> 	<p>Had to query the player.id in the 'national_team' SQL statement so that the column can be used for linking in the template:</p> <pre>cur.execute('SELECT first_name, last_name, image, national_team, player.id FROM Player WHERE country_id = ? AND national_team = 1', (id,)) national_team = cur.fetchall()</pre> <p>Had to query the player.id in the 'former_team' SQL statement so that the column can be used for linking in the template:</p> <pre>cur.execute('SELECT first_name, last_name, image, national_team, player.id FROM Player WHERE country_id = ? AND national_team = 0', (id,)) former_team = cur.fetchall()</pre> <p>Changed formatting of the template in 'country.html' so that the player name and image to link to the individual players page:</p> <pre>{% for item in national_team %} <h2> National Team:
 {{item[0]}} {{item[1]}}
 </h2>
 {% endfor %} {% for item in former_team %} <h2> Former Team:
 {{item[0]}} </h2></pre>	<p>Yes</p>	 <p>Successfully showed the individual player page after clicking on that player from a specific country page.</p>
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		<pre> {{item[1]}} </h2>
 {% endfor %} </pre>		
Clicked on a link (of a country) from a specific tournament year page eg. 	Should display all the information about that country from the database. (should be the same result as from clicking on a country link straight from the 'countries' tab) (just another way to get to the same page) eg. 	Made a change to the formatting in the 'tournament.html' template. Added a "href" tag around the "img" tag of the country flag to make it a link: <pre> {% for item in teams %} <h2> {{item[1]}}
 </h2> {% endfor %} </pre>	Yes	 Successfully showed the individual country page that participated in the specific tournament year.

<p>Clicked on the link (of a players name) from a specific positions tab eg.</p> 	<p>Should display all the information about that specific player from the database. (should be the same result as from clicking on a players link straight from the players tab) (just another way to get to the same page) eg.</p> 	<p>Had to query the player.id in the 'position_players' SQL statement so that the column can be used for linking in the template:</p> <pre>cur.execute('SELECT Player.first_name, Player.last_name, Player.image, Country.flag, Player.id FROM PlayerPosition Join Player ON PlayerPosition.player_id=Player.id Join Country ON Player.country_id=Country.id Join Position ON PlayerPosition.position_id=Position.id WHERE Position.id = ?', (id,)) position_players = cur.fetchall()</pre>	<p>Yes</p>	 <p>Successfully showed the individual player page after clicking on that player from a specific country page.</p>
<p>Error 404 page, when user enters a random input into the URL.</p>	<p>Should display an Error 404 page with a link that connects back to the homepage of</p>		<p>No</p>	<p>Code breaks: Not Found</p> <p>The requested URL was not found on the server. If you entered the URL manually please check your spelling and try again.</p>

Eg. ① 127.0.0.1:5000/country/738 ① 127.0.0.1:5000/ponvrieon	the site.	<p>Made a '404.html' template:</p> <pre><h1> ERROR 404! </h1> <h2> This page does not exist. Please return to the home page.</h2></pre> <p>Added an 'if' statement to call the "error404.html" template in the individual position route if the SQL query returns nothing:</p> <pre>if position is None: return render_template("error404.html")</pre>	No	<p>① 127.0.0.1:5000/tournament/1/78942</p> <p>Female Waterpolo Players</p> <p>HOME COUNTRIES PLAYERS TOURNAMENTS POSITIONS</p> <p>© 2023 XENIA.CORP</p> <p>Nothing is displayed. Should display an error page instead.</p>
		<p>Made an 'error handler' route that displays the error page when any numbers, symbols or letters are entered into the main URL:</p> <pre>@app.errorhandler(404) def page_not_found(error): return render_template("error404.html"), 404</pre>	Yes	<p>Works for the following URL's:</p> <p>← → ⌂ ① 127.0.0.1:5000/47893</p> <p>ERROR 404!</p> <p>This page does not exist. Please return to the home page.</p> <p>← → ⌂ ① 127.0.0.1:5000/u9230ur</p> <p>ERROR 404!</p> <p>This page does not exist. Please return to the home page.</p> <p>← → ⌂ ① 127.0.0.1:5000/gherua</p> <p>ERROR 404!</p> <p>This page does not exist. Please return to the home page.</p> <p>Still doesn't show error page if an id that doesn't exist is entered:</p>

				
		<p>Imported the 'abort' function into my code:</p> <pre>from flask import Flask, render_template, abort</pre> <p>Used the abort function in the individual position route:</p> <pre>if position is None: abort(404)</pre>	No	
		<p>Changed the 'if' statement in the individual position route to carry through with the abort if the SQL statement returns an empty list:</p> <pre>if position == []: abort(404)</pre>	No	<p>Works correctly when an invalid id is entered:</p> <p>ERROR 404!</p> <p>This page does not exist. Please return to the home page.</p> <p>However, when an integer higher than 9223372036854775807 is entered as the id, SQLite is unable to process the number:</p> <p>OverflowError</p> <p>OverflowError: Python int too large to convert to SQLite INTEGER</p>

				
	<p>Make 404 page work for larger id numbers that sql can't process.</p> <p>Did this by adding this if statement at the beginning of each individual page route:</p> <pre>if id > 9223372036854775807: # prevents overflow error abort(404)</pre> <p>Added a slightly different if statement to the indiv_tournament route:</p> <pre>if name_id > 9223372036854775807 or year > 9223372036854775807: abort(404)</pre>	Yes	Directs back to the error page no matter how large the number:	
	<p>Link the 'error404.html' page to each page where a problem could occur.</p>	<p>Added the if statement into every route that takes an id in the URL:</p> <pre>if #variable name# == []: abort(404)</pre>	Yes	<p>Tested each page thoroughly by changing/adding/removing letters, numbers and symbols. Each URL either led to a real page that it was meant to display, or showed my Error 404 page.</p> <p>ERROR 404!</p> <p>This page does not exist. Please return to the home page.</p>
	Error404 page has a link back to the home page for	Added a link into the 'error404.html' template:	Yes	Error page works when no result is retrieved from the SQL query:

	ease of usability.	<pre><h2> This page does not exist.
 Click here to return to the home page </h2></pre>		 <p>127.0.0.1:5000</p> <p>Data integrity - Link matches up to destination ↓</p>  <p>In Iteration 5 (CSS and HTML formatting), this Error page will be made more interesting.</p>
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Make function that connects to the database	So I don't have to keep repeating lines of code in every route	Made function that connects to the database and processes the sql query: <pre>def sql(query) : conn = sqlite3.sql("waterpolo.db") # connects to the sql database cur = conn.cursor() cur.execute(query)</pre>	No	General pages work: eg. 
---	--	--	----	---

	<pre> results = cur.fetchall() return results </pre>		<p>Pages that use id's in the URL show errors (because the function doesn't account for id's): eg.</p> 
	<p>Changed function to have an 'if statement':</p> <pre> def sql(query, id): # use this function in the other # functions to connect to the database conn = sqlite3.sql("waterpolo.db") # connects to the sql database cur = conn.cursor() if id is not None: cur.execute(query, id) else: cur.execute(query) results = cur.fetchall() return results </pre>	Yes	<p>Every page works normally with no errors occurring: eg.</p> 
	<p>Queried function in each route to avoid having to repeat the 'connect' and 'cursor' lines in each route: eg.</p> <pre> position = sql('SELECT Position.position, Position.image, \ Position.description, pos_copyright FROM Position \ WHERE Position.id = ?', (id,)) </pre>		

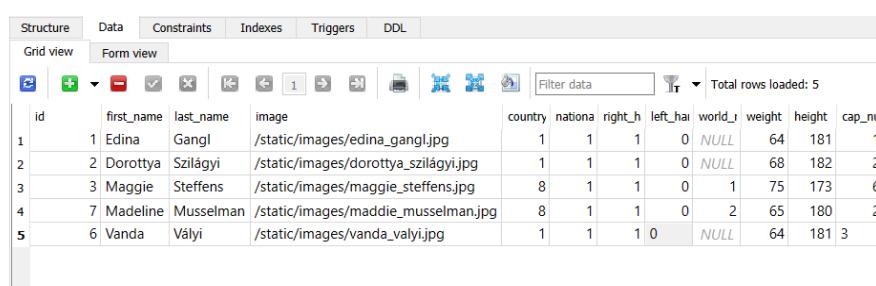
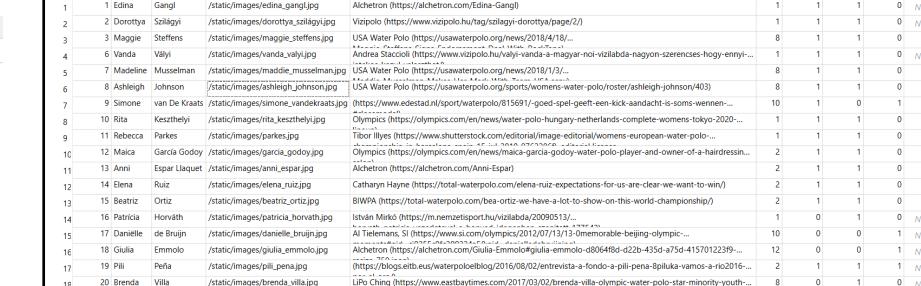
Iteration 4:

Insert all the data into the database and confirm that all the pages are still showing the correct information.

This includes all the legal implications of having permission to use images or logos.

It is too time consuming to put in all players, countries and tournaments who are involved in female water polo at an international level. Therefore I will only be entering all the players for a few teams and allocating a few players for every other country. For the tournament information I will also only be including sufficient information (3 different tournaments with 2 years for each) to show that the website works properly, as the project is about the programming aspect and not entirely about entering data.

Address legal implications of using images on the website by updating the ER diagram (#9), asking photo owners for permission and entering the citation in the SQLite database.

Table	Original Data entered (sample data from iteration 1)	After iteration is completed																																																																																																																																																																																																																																																																																
Player table	 <p>The screenshot shows the SQLite browser interface with the 'Player table' selected. The table has columns: id, first_name, last_name, image, country, national, right_h, left_hair, world_r, weight, height, and cap_nu. The data consists of 5 rows:</p> <table border="1"> <thead> <tr> <th>id</th> <th>first_name</th> <th>last_name</th> <th>image</th> <th>country</th> <th>national</th> <th>right_h</th> <th>left_hair</th> <th>world_r</th> <th>weight</th> <th>height</th> <th>cap_nu</th> </tr> </thead> <tbody> <tr> <td>1</td> <td>Edina</td> <td>Gangl</td> <td>/static/images/edina_gangl.jpg</td> <td>1</td> <td>1</td> <td>1</td> <td>0</td> <td>NULL</td> <td>64</td> <td>181</td> <td>1</td> </tr> <tr> <td>2</td> <td>Dorottya</td> <td>Szilágyi</td> <td>/static/images/dorottya_szilagyi.jpg</td> <td>1</td> <td>1</td> <td>1</td> <td>0</td> <td>NULL</td> <td>68</td> <td>182</td> <td>2</td> </tr> <tr> <td>3</td> <td>Maggie</td> <td>Steffens</td> <td>/static/images/maggie_steffens.jpg</td> <td>8</td> <td>1</td> <td>1</td> <td>0</td> <td>1</td> <td>75</td> <td>173</td> <td>6</td> </tr> <tr> <td>4</td> <td>Madeline</td> <td>Musselman</td> <td>/static/images/madeline_musselman.jpg</td> <td>8</td> <td>1</td> <td>1</td> <td>0</td> <td>2</td> <td>65</td> <td>180</td> <td>2</td> </tr> <tr> <td>5</td> <td>Vanda</td> <td>Vályi</td> <td>/static/images/vanda_valyi.jpg</td> <td>1</td> <td>1</td> <td>1</td> <td>0</td> <td>NULL</td> <td>64</td> <td>181</td> <td>3</td> </tr> </tbody> </table>	id	first_name	last_name	image	country	national	right_h	left_hair	world_r	weight	height	cap_nu	1	Edina	Gangl	/static/images/edina_gangl.jpg	1	1	1	0	NULL	64	181	1	2	Dorottya	Szilágyi	/static/images/dorottya_szilagyi.jpg	1	1	1	0	NULL	68	182	2	3	Maggie	Steffens	/static/images/maggie_steffens.jpg	8	1	1	0	1	75	173	6	4	Madeline	Musselman	/static/images/madeline_musselman.jpg	8	1	1	0	2	65	180	2	5	Vanda	Vályi	/static/images/vanda_valyi.jpg	1	1	1	0	NULL	64	181	3	 <p>The screenshot shows the SQLite browser interface with the 'Player table' selected. The table has columns: id, first_name, last_name, image, player_copyright, country, national_team, right_hair_dnr, left_hair_dmn, and world_ranking. The data consists of 21 rows, including new entries for countries like Hungary, Mexico, and USA, and updated copyright information for existing players.</p> <table border="1"> <thead> <tr> <th>id</th> <th>first_name</th> <th>last_name</th> <th>image</th> <th>player_copyright</th> <th>country</th> <th>national_team</th> <th>right_hair_dnr</th> <th>left_hair_dmn</th> <th>world_ranking</th> </tr> </thead> <tbody> <tr> <td>1</td> <td>Edina</td> <td>Gangl</td> <td>/static/images/edina_gangl.jpg</td> <td>Alchetron (https://alchetron.com/Edina-Gangl)</td> <td>1</td> <td>1</td> <td>1</td> <td>0</td> <td>NULL</td> </tr> <tr> <td>2</td> <td>Dorottya</td> <td>Szilágyi</td> <td>/static/images/dorottya_szilagyi.jpg</td> <td>Vizipolo (https://www.vizipolo.hu/tag/szilagyi-dorottya/page/2/)</td> <td>1</td> <td>1</td> <td>1</td> <td>1</td> <td>NULL</td> </tr> <tr> <td>3</td> <td>Maggie</td> <td>Steffens</td> <td>/static/images/maggie_steffens.jpg</td> <td>USA Water Polo 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<td>(https://www.edestan.nl/sport/waterpolo/815691/good-spel-gefiet-een-kick-aandacht-is-soms-wennin-...)</td> <td>10</td> <td>1</td> <td>0</td> <td>1</td> <td>3</td> </tr> <tr> <td>8</td> <td>Rita</td> <td>Keszthelyi</td> <td>/static/images/rita_keszthelyi.jpg</td> <td>Olympics (https://olympics.com/en/news/water-polo-hungary-netherlands-complete-womens-tokyo-2020...)</td> <td>1</td> <td>1</td> <td>1</td> <td>0</td> <td>5</td> </tr> <tr> <td>9</td> <td>Rebecca</td> <td>Parkes</td> <td>/static/images/rebecca_parkes.jpg</td> <td>Tibor Illy (https://www.shutterstock.com/editorial/image-editorial/womens-european-water-polo-...)</td> <td>1</td> <td>1</td> <td>1</td> <td>0</td> <td>6</td> </tr> <tr> <td>10</td> <td>Maica</td> <td>Garcia Godoy</td> <td>/static/images/garcia_godoy.jpg</td> <td>Olympics (https://olympics.com/en/news/macia-garcia-godoy-water-polo-player-and-owner-of-a-hairdressin...)</td> <td>2</td> <td>1</td> <td>1</td> <td>0</td> <td>7</td> </tr> <tr> <td>11</td> 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(https://olympics.com/en/news/macia-garcia-godoy-water-polo-player-and-owner-of-a-hairdressin...)	2	1	1	0	7	11	Annie	Esparragosa Llaquet	/static/images/annie_espar_llaket.jpg	Alchetron (https://alchetron.com/Annie-Esparr)	2	1	1	0	6	12	Elena	Ruiz	/static/images/elena_ruiz.jpg	Catharyn Hayne (https://total-waterpolo.com/elena-ruiz-expectations-for-us-are-clear-we-want-to-win/)	2	1	1	0	9	13	Beatriz	Ortiz	/static/images/beatriz_ortiz.jpg	BWPA (https://total-waterpolo.com/beatriz-ortiz/we-have-a-lot-to-show-on-this-world-championship/)	2	1	1	0	10	14	Patricia	Hovarth	/static/images/patricia_hovarth.jpg	István Mirkó (https://menemzetisport.hu/vizitalba/20090513/...)	1	0	1	0	NULL	15	Danielle	de Brujin	/static/images/danielle_brujin.jpg	Al Telemans, SI (https://www.si.com/olympics/2012/07/13/13-omenbare-beijing-olympic-...)	10	0	0	1	NULL	16	Giulia	Emmolo	/static/images/giulia_emmolo.jpg	Alchetron 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id	first_name	last_name	image	country	national	right_h	left_hair	world_r	weight	height	cap_nu																																																																																																																																																																																																																																																																							
1	Edina	Gangl	/static/images/edina_gangl.jpg	1	1	1	0	NULL	64	181	1																																																																																																																																																																																																																																																																							
2	Dorottya	Szilágyi	/static/images/dorottya_szilagyi.jpg	1	1	1	0	NULL	68	182	2																																																																																																																																																																																																																																																																							
3	Maggie	Steffens	/static/images/maggie_steffens.jpg	8	1	1	0	1	75	173	6																																																																																																																																																																																																																																																																							
4	Madeline	Musselman	/static/images/madeline_musselman.jpg	8	1	1	0	2	65	180	2																																																																																																																																																																																																																																																																							
5	Vanda	Vályi	/static/images/vanda_valyi.jpg	1	1	1	0	NULL	64	181	3																																																																																																																																																																																																																																																																							
id	first_name	last_name	image	player_copyright	country	national_team	right_hair_dnr	left_hair_dmn	world_ranking																																																																																																																																																																																																																																																																									
1	Edina	Gangl	/static/images/edina_gangl.jpg	Alchetron (https://alchetron.com/Edina-Gangl)	1	1	1	0	NULL																																																																																																																																																																																																																																																																									
2	Dorottya	Szilágyi	/static/images/dorottya_szilagyi.jpg	Vizipolo (https://www.vizipolo.hu/tag/szilagyi-dorottya/page/2/)	1	1	1	1	NULL																																																																																																																																																																																																																																																																									
3	Maggie	Steffens	/static/images/maggie_steffens.jpg	USA Water Polo (https://usawaterpolo.org/news/2018/4/18/...)	8	1	1	0	4																																																																																																																																																																																																																																																																									
4	Vanda	Vályi	/static/images/vanda_valyi.jpg	Andrea Fabbri (https://www.andreafabbri.it/2017/07/01/valyai-not-villabda-nagyon-szerencses-hogy-ennyi-...)	1	1	1	0	NULL																																																																																																																																																																																																																																																																									
5	Madeline	Musselman	/static/images/madeline_musselman.jpg	USA Water Polo (https://usawaterpolo.org/news/2018/1/3/...)	8	1	1	0	1																																																																																																																																																																																																																																																																									
6	Ashleigh	Johnson	/static/images/ashleigh_johnson.jpg	USA Water Polo (https://usawaterpolo.org/sports/womens-water-polo/roster/ashleigh-johnson/403)	8	1	1	0	2																																																																																																																																																																																																																																																																									
7	Simone	de Kruats	/static/images/simone_vanderkraats.jpg	(https://www.edestan.nl/sport/waterpolo/815691/good-spel-gefiet-een-kick-aandacht-is-soms-wennin-...)	10	1	0	1	3																																																																																																																																																																																																																																																																									
8	Rita	Keszthelyi	/static/images/rita_keszthelyi.jpg	Olympics (https://olympics.com/en/news/water-polo-hungary-netherlands-complete-womens-tokyo-2020...)	1	1	1	0	5																																																																																																																																																																																																																																																																									
9	Rebecca	Parkes	/static/images/rebecca_parkes.jpg	Tibor Illy (https://www.shutterstock.com/editorial/image-editorial/womens-european-water-polo-...)	1	1	1	0	6																																																																																																																																																																																																																																																																									
10	Maica	Garcia Godoy	/static/images/garcia_godoy.jpg	Olympics (https://olympics.com/en/news/macia-garcia-godoy-water-polo-player-and-owner-of-a-hairdressin...)	2	1	1	0	7																																																																																																																																																																																																																																																																									
11	Annie	Esparragosa Llaquet	/static/images/annie_espar_llaket.jpg	Alchetron (https://alchetron.com/Annie-Esparr)	2	1	1	0	6																																																																																																																																																																																																																																																																									
12	Elena	Ruiz	/static/images/elena_ruiz.jpg	Catharyn Hayne (https://total-waterpolo.com/elena-ruiz-expectations-for-us-are-clear-we-want-to-win/)	2	1	1	0	9																																																																																																																																																																																																																																																																									
13	Beatriz	Ortiz	/static/images/beatriz_ortiz.jpg	BWPA (https://total-waterpolo.com/beatriz-ortiz/we-have-a-lot-to-show-on-this-world-championship/)	2	1	1	0	10																																																																																																																																																																																																																																																																									
14	Patricia	Hovarth	/static/images/patricia_hovarth.jpg	István Mirkó (https://menemzetisport.hu/vizitalba/20090513/...)	1	0	1	0	NULL																																																																																																																																																																																																																																																																									
15	Danielle	de Brujin	/static/images/danielle_brujin.jpg	Al Telemans, SI (https://www.si.com/olympics/2012/07/13/13-omenbare-beijing-olympic-...)	10	0	0	1	NULL																																																																																																																																																																																																																																																																									
16	Giulia	Emmolo	/static/images/giulia_emmolo.jpg	Alchetron (https://alchetron.com/Giulia_Emmolo#giulia_emmolo-d8064f8d-d22b-435d-a75d-4157012239...)	12	0	0	1	NULL																																																																																																																																																																																																																																																																									
17	Pili	Péter	/static/images/pili_peter.jpg	0https://blogs.sit.us/waterpolo/blog/2016/08/02/erirevista-a-fondo-a-pili-pena-8plukka-varmos-a-rie2016-...)	2	1	1	1	NULL																																																																																																																																																																																																																																																																									
18	Brenda	Villa	/static/images/brenda_villa.jpg	LIPo Ching (https://www.eastbaytimes.com/2017/03/02/brenda-villa-olympic-water-polo-star-minority-youth-...)	8	0	1	0	NULL																																																																																																																																																																																																																																																																									
19	Rachel	Fattal	/static/images/rachel_fattal.jpg	USA Water Polo (https://usawaterpolo.org/sports/womens-water-polo/roster/rachel-fattal/395)	8	1	1	0	NULL																																																																																																																																																																																																																																																																									

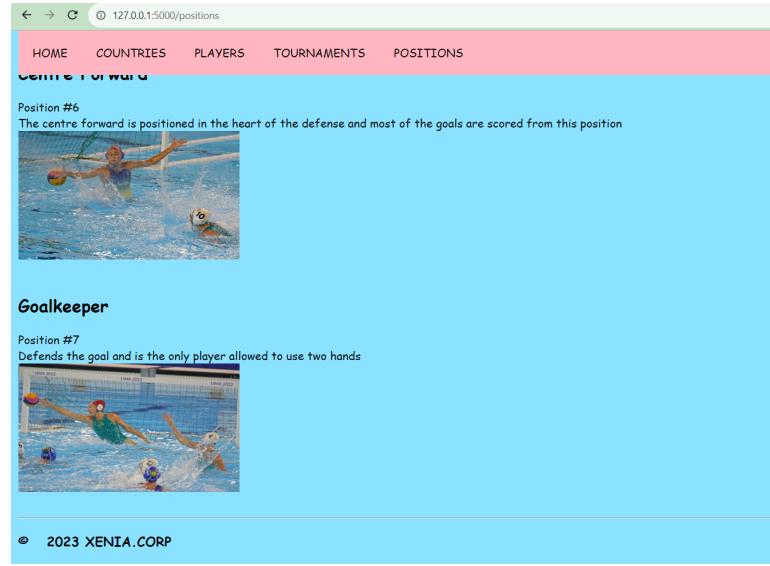
PlayerPosition table	player_id position_id	player_id position_id	player_id position_id
	1 7 2 2 2 4 3 2 3 4 6 4 6 2	1 3 2 4 3 2 4 1 5 3 6 4 7 5 8 2 9 1 10 5 11 6 12 4 13 5 14 7 15 2 16 4 17 2	18 4 19 2 20 4 21 6 22 6 23 4 24 2 25 5 26 7 27 1 28 2 29 3 30 4 31 5 32 4 33 2 34 2 35 4 36 2 37 4 38 7

Iteration 5:

CSS and HTML formatting for spacing and colours.

Page	Improvement/idea	Change	Did it work?	Result
Nav bar	Has different text and background colours for hovering and not hovering. (removing the default links)	<pre>.nav { display: flex; flex-flow: row wrap; overflow: hidden; background-color: rgb(255,182,193); top: 0; }</pre>	Yes	<p>Hovering works:</p>

	<pre>.nav a:link { float: left; display: block; text-decoration: none; padding: 10px; margin: 10px; } .nav a:hover, a.active { background-color: rgb(243, 131, 167); color: rgb(255,255,255); }</pre>		<p>Maggie Steffens Female World #4</p> <p>(colour palette will be changed)</p>
Nav bar should stick to the top of the page when scrolling down	<p>Added to the '.nav' tag in the css file:</p> <pre>position: sticky;</pre>	Yes	<p>Nav bar stays at the top when scrolling down: → important for easy user usability because the user can easily change pages and doesn't have to scroll to the top of the page to find the nav bar</p>

				 <p>Centre Forward Position #6 The centre forward is positioned in the heart of the defense and most of the goals are scored from this position</p> <p>Goalkeeper Position #7 Defends the goal and is the only player allowed to use two hands</p> <p>© 2023 XENIA.CORP</p>
Home Page	<p>A slideshow cycle through of images of waterpolo that the user can interact with</p> <p>(hard coded into the 'home.html' route and css document (no involvement with SQLite))</p> <p>Adapted code from w3 schools about an image carousel.</p>	<p>Yes</p>	 <p>Women's Waterpolo</p> <p>HOME COUNTRIES PLAYERS TOURNAMENTS POSITIONS</p> <p>1/5</p> <p>Photo © Cathryn Hayne</p>	

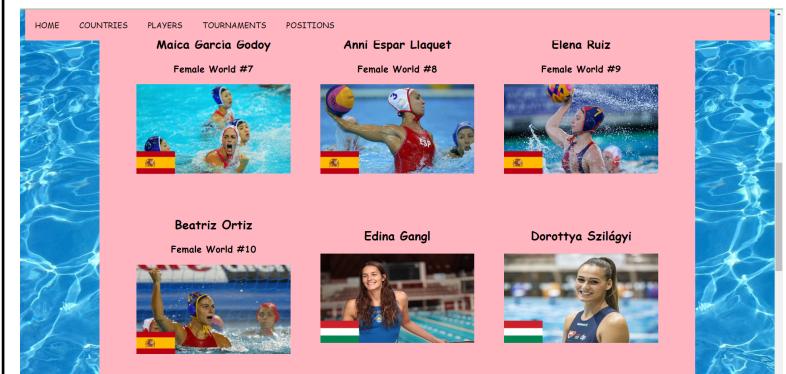
Players Page	<p>Want ranked players to appear first and in order from number 1 to number 10</p>	<p>Added condition onto the SQL query in 'countries' route:</p> <pre><code>ORDER BY Player.world_ranking asc;</code></pre>	Yes	
	<p>Want the flag image to sit on the corner of the player image</p>	<p>HTML formatting in 'players.html':</p> <pre><code><div class="image-stack"> <div class="image-stack_bottom"> </div> <div class="image-stack_flag"> </div> </div></code></pre> <p>CSS:</p> <pre><code>.image-stack::after { content: ' '; display: table; clear: both; }</code></pre>	No	<p>Before:</p>  <p>After:</p> <p>Image got smaller but didn't overlap</p> 

	<pre>.image-stack_bottom { align-items: center; padding-top: 0%; } .image-stack_flag { float: left; position: relative; > img { width: 77.5px; height: 45px; } }</pre>								
	<p>Added margins in the css:</p> <pre>.image-stack_flag { float: left; position: relative; margin-left: 0%; margin-top: -16%; z-index: 1; > img { width: 77.5px; height: 45px; } }</pre>	Yes	<table border="0"> <tbody> <tr> <td style="text-align: center;">  Madeline Musselman Female World #1 USA </td> <td style="text-align: center;">  Ashleigh Johnson Female World #2 Hungary </td> <td style="text-align: center;">  Simone van De Kraats Female World #3 Netherlands </td> </tr> <tr> <td style="text-align: center;">  Maggie Steffens Female World #4 USA </td> <td style="text-align: center;">  Rita Keszthelyi Female World #5 Hungary </td> <td style="text-align: center;">  Rebecca Parkes Female World #6 United Kingdom </td> </tr> </tbody> </table>	 Madeline Musselman Female World #1 USA	 Ashleigh Johnson Female World #2 Hungary	 Simone van De Kraats Female World #3 Netherlands	 Maggie Steffens Female World #4 USA	 Rita Keszthelyi Female World #5 Hungary	 Rebecca Parkes Female World #6 United Kingdom
 Madeline Musselman Female World #1 USA	 Ashleigh Johnson Female World #2 Hungary	 Simone van De Kraats Female World #3 Netherlands							
 Maggie Steffens Female World #4 USA	 Rita Keszthelyi Female World #5 Hungary	 Rebecca Parkes Female World #6 United Kingdom							
	<p>Want the rest of the players to have the same formatting as the top 10</p>	<p>Extended html formatting in the 'players.html' template:</p> <pre><div class="row"></pre>	<p>No</p> <p>The two queries merge in the same row which is ideal but the images don't line up anymore:</p>						

```

    . . . . .
{%
  for item in players %}
    <div class="column">
      <h2><a href =
"/player/{{item[0]}}">
{{item[1]}} {{item[2]}} </a>
</h2>
      <div
class="image-stack">
        <div
class="image-stack_bottom">
          
        </div>
        <div
class="image-stack_flag">
          
        </div>
      </div>
    {%
      endfor %}
</div>

```



Added an empty line in the non-ranked players html:

```

{%
  for item in players %}
    <div class="column">
      <h2><a href =
"/player/{{item[0]}}">
{{item[1]}} {{item[2]}} </a>

```

Yes

Images line up perfectly now:

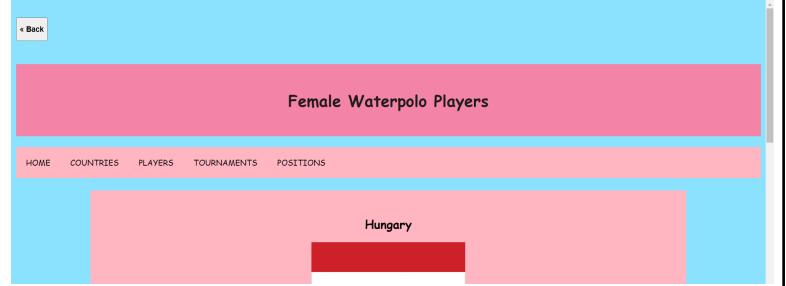
		<pre></h2> <h3>
 </h3></pre>		
<p>I dislike that there is such a large gap between the name and the images for the non-ranked players.</p>				

Indiv pages...	Need a back button to go back to previous page (for ease of usability for the user)	<p>Would have to hard code the link destination into every html template:</p> <pre>&laquo; Back</pre> <p>CSS for button class:</p> <pre>.back a:link { text-decoration: none; display: inline-block; padding: 8px 16px; background-color: #f1f1f1; color: black; }</pre>	No	<p>CSS didn't work (normal link css overruled):</p> <p>Link ↗ Hovered ↗</p> <p>Also would be very time consuming to hard code the link back to the main page for every individual page. Therefore a solution that takes the user back to the last visited page would be better.</p>
----------------	---	---	----	---

	<pre>.back a:hover, a:active { text-decoration: none; display: inline-block; padding: 8px 16px; background-color: #04AA6D; color: white; }</pre>		
	<p>Put a 'history.back()' function into a button in every indiv page html:</p> <pre><div class="back"> <button onclick="history.back()"> <h2> &laquo; Back </h2> </button> </div></pre> <p>Formatted the button with CSS:</p> <pre>.back { text-decoration: none; display: inline-block; text-align: center; padding: 10px 0px; } .back button:link { background-color: #f1f1f1;</pre>	Yes	 
			<p>Takes the user back to the next page successfully: eg. All countries page</p>

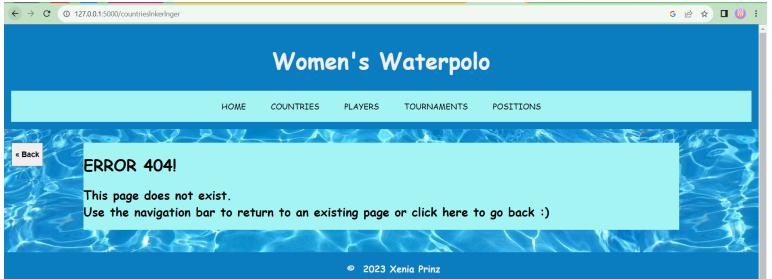
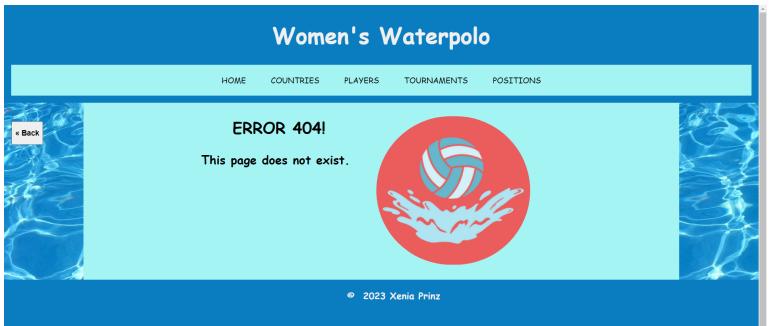
		<pre> color: black; } .back button:hover, button:active { cursor: pointer; background-color: #04AA6D; color: white; } </pre>		<p>The screenshot shows a horizontal grid of six country flags. Each flag is accompanied by its name in a small black font directly below it. The flags are arranged in two rows: three in the top row and three in the bottom row.</p>
All pages	When you hover on a link, the image/text associated with the image is made bigger.	<p>Added CSS to a div class used in the HTML templates:</p> <pre> .zoom:link { transition: transform .05s; } .zoom:hover, .zoom:active { transform: scale(1.1); } </pre>	Yes	<p>Eg.</p> <p>The screenshot shows a horizontal grid of ten country flags. Above the grid, the word "Countries" is centered. Each flag is accompanied by its name in a small black font directly below it. The flags are arranged in two rows: five in the top row and five in the bottom row.</p>
	A container that contains all the information but has a different background colour for contrast. Container must be the same width on	<p>Made a really complicated format with lots of div's for the 'country.html' page:</p> <pre> <div class="container"> <div class="row"> {% for item in </pre>	No	<p>Not efficient and very confusing to use. Gives good results on the 'countries' page but doesn't work for when transferred onto other pages.</p>

<p>each page.</p>	<pre>countries %} <div class="column"> <h2> {{item[1]}}
 </h2> </div> {% endfor % } </div></pre>		
	<p>Added the div's into the 'layout.html' template so that they would automatically be applied to the other templates:</p> <pre><div class="main"> <div class="container"> {% block content %}{% endblock % } {% include "footer.html" % } <script src="/static/js/interact.js"> </script> </div> </div></pre> <p>Removed the container and main div's from the indiv templates: eg. 'countries.html'</p>	<p>No</p>	<p>Works a lot better but has some issues.</p> <ul style="list-style-type: none"> - Footer is pulled into the container <p>eg.</p> <ul style="list-style-type: none"> - The other pages need to be formatted to fit to the main and container div - Back button should be outside the container

	<pre><div class="row"> {% for item in countries %} <div class="column"> <h2> {{item[1]}}
 </h2> </div> {% endfor %} </div></pre>		
	<p>Moved footer out of the div in 'layout.html':</p> <pre><div class="main"> <div class="container"> {% block content %}{% endblock % } </div> </div> {% include "footer.html" %}</pre>	No	<p>Footer is successfully out of container div:</p>  <p>Back button goes to the top of the page:</p> 
	<p>Moved back button out of layout:</p> <pre><div class="back"> <button onclick="history.back()"> <h2> &laquo; Back </h2> </button> </div></pre>		

	<pre>{% extends "layout.html" %} {% block content %}</pre>		
	<p>Moved back button:</p> <pre>{% extends "layout.html" %} {% block title %} <div class="back"> <button onclick="history.back()"> <h2> &laquo; Back </h2> </button> </div> {% endblock %} {% block content %}</pre>	Yes	 <p>'Container' div lines up when page changes, although back button appears which is perfect:</p> 
	<p>Added back button formatting in 'layout.html':</p> <pre>{% block title %}{% endblock %} <!-- for back button --> <div class="main"> <div class="container"> {% block content %}{% endblock %} </div> </div></pre>		
	<p>Change colour palette so the readability is better and the colours compliment each</p>	Found a nice water background and used a colour picker tool to chose two blue tones from it as the main colours on the website:	Yes eg.

	other	 rgb(10, 125, 193)  rgb(165, 244, 244)		
Error Page	Have the error page display on a normal page of the website (with the same header, nav and footer).	Extended 'layout.html' into the 'error.html' template: <pre>{% extends "layout.html" %} {% block content %} <h1> ERROR 404! </h1> {% endblock %}</pre>	Yes	<p>Original:</p> <p>ERROR 404!</p> <p>This page does not exist.</p> <p>When 'layout.html' was extended:</p> 

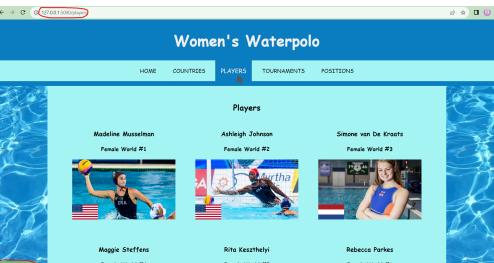
	An option to return to the previous page.	Added back button code into the 'error404.html' template	Yes	
	Format the error message so it looks aesthetically pleasing for the user	Added a rounded image and centre aligned text.	Yes	

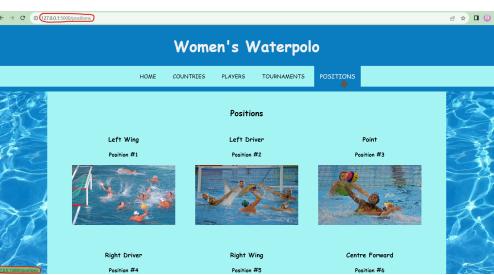
Data Integrity Testing:

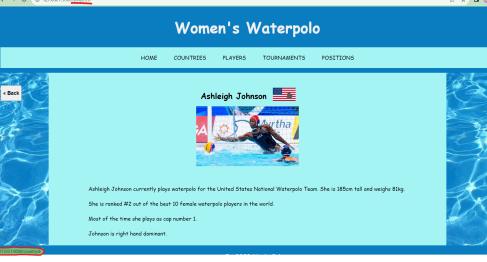
Tested random values from each page to ensure that they lead to the correct location

Testing Table:

	Page	Link Chosen (as example)	Hover on link result	Click on link result	Corresponding result in database

<input checked="" type="checkbox"/>	Home	Hovered on home		(Hardcoded into code → no database involvement)																																																																																																																																																																																																																								
<input checked="" type="checkbox"/>	All countries page	Hovered on countries page		<p>Country table:</p> <table border="1"> <thead> <tr> <th>id</th> <th>country</th> <th>flag</th> </tr> </thead> <tbody> <tr><td>1</td><td>Hungary</td><td>/static/images/hungary.jpg</td></tr> <tr><td>2</td><td>Spain</td><td>/static/images/spain.jpg</td></tr> <tr><td>3</td><td>Australia</td><td>/static/images/australia.jpg</td></tr> <tr><td>4</td><td>China</td><td>/static/images/china.jpg</td></tr> <tr><td>5</td><td>Russia</td><td>/static/images/russia.jpg</td></tr> <tr><td>6</td><td>South Africa</td><td>/static/images/south_africa.jpg</td></tr> <tr><td>7</td><td>New Zealand</td><td>/static/images/new_zealand.jpg</td></tr> <tr><td>8</td><td>United States</td><td>/static/images/united_states.jpg</td></tr> <tr><td>9</td><td>Canada</td><td>/static/images/canada.jpg</td></tr> <tr><td>10</td><td>Netherlands</td><td>/static/images/netherlands.jpg</td></tr> <tr><td>11</td><td>Greece</td><td>/static/images/greece.jpg</td></tr> <tr><td>12</td><td>Italy</td><td>/static/images/italy.jpg</td></tr> <tr><td>13</td><td>Israel</td><td>/static/images/israel.jpg</td></tr> <tr><td>14</td><td>ROC</td><td>/static/images/placeholder.jpg</td></tr> <tr><td>15</td><td>Brazil</td><td>/static/images/brazil.jpg</td></tr> <tr><td>16</td><td>Cuba</td><td>/static/images/cuba.jpg</td></tr> <tr><td>17</td><td>Kazakhstan</td><td>/static/images/kazakhstan.jpg</td></tr> <tr><td>18</td><td>South Korea</td><td>/static/images/south_korea.jpg</td></tr> <tr><td>19</td><td>France</td><td>/static/images/france.jpg</td></tr> <tr><td>20</td><td>Japan</td><td>/static/images/japan.jpg</td></tr> </tbody> </table>	id	country	flag	1	Hungary	/static/images/hungary.jpg	2	Spain	/static/images/spain.jpg	3	Australia	/static/images/australia.jpg	4	China	/static/images/china.jpg	5	Russia	/static/images/russia.jpg	6	South Africa	/static/images/south_africa.jpg	7	New Zealand	/static/images/new_zealand.jpg	8	United States	/static/images/united_states.jpg	9	Canada	/static/images/canada.jpg	10	Netherlands	/static/images/netherlands.jpg	11	Greece	/static/images/greece.jpg	12	Italy	/static/images/italy.jpg	13	Israel	/static/images/israel.jpg	14	ROC	/static/images/placeholder.jpg	15	Brazil	/static/images/brazil.jpg	16	Cuba	/static/images/cuba.jpg	17	Kazakhstan	/static/images/kazakhstan.jpg	18	South Korea	/static/images/south_korea.jpg	19	France	/static/images/france.jpg	20	Japan	/static/images/japan.jpg																																																																																																																																																									
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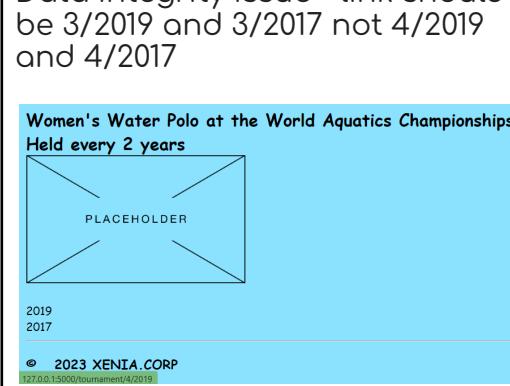
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<input checked="" type="checkbox"/>	indiv_country to player	Anni Esper Llaquet (id = 13)	 	<p>Country table: (spain = country_id = 2)</p> <table border="1"> <thead> <tr> <th>id</th> <th>countryv</th> <th>flag</th> </tr> </thead> <tbody> <tr> <td>2</td> <td>Spain</td> <td>/static/images/spain.jpg</td> </tr> </tbody> </table> <p>Player table:</p> <table border="1"> <thead> <tr> <th>id</th> <th>first_name</th> <th>last_name</th> <th>image</th> <th>count</th> <th>national_t</th> <th>right_han</th> <th>left_hand</th> <th>world_ran</th> <th>weight</th> <th>height</th> <th>cap_numt</th> </tr> </thead> <tbody> <tr> <td>12</td> <td>Maica</td> <td>Garcia Godoy</td> <td>/static/images/garcia_godoy.jpg</td> <td>2</td> <td>1</td> <td>1</td> <td>0</td> <td>7</td> <td>90</td> <td>188</td> <td>11</td> </tr> <tr> <td>13</td> <td>Anni</td> <td>Esper Llaquet</td> <td>/static/images/anni_esper.jpg</td> <td>2</td> <td>1</td> <td>1</td> <td>0</td> <td>8</td> <td>67</td> <td>180</td> <td>3</td> </tr> <tr> <td>14</td> <td>Elena</td> <td>Ruiz</td> <td>/static/images/elena_ruiz.jpg</td> <td>2</td> <td>1</td> <td>1</td> <td>0</td> <td>9</td> <td>59</td> <td>170</td> <td>7</td> </tr> <tr> <td>15</td> <td>Beatriz</td> <td>Ortiz</td> <td>/static/images/beatriz_ortiz.jpg</td> <td>2</td> <td>1</td> <td>1</td> <td>0</td> <td>10</td> <td>65</td> <td>176</td> <td>4</td> </tr> <tr> <td>18</td> <td>Giulia</td> <td>Emmolo</td> <td>/static/images/giulia_emmolo.jpg</td> <td>2</td> <td>0</td> <td>0</td> <td>1</td> <td>NULL</td> <td>67</td> <td>170</td> <td>9</td> </tr> <tr> <td>19</td> <td>Pili</td> <td>Peña</td> <td>/static/images/pili_peña.jpg</td> <td>2</td> <td>1</td> <td>1</td> <td>1</td> <td>NULL</td> <td>61</td> <td>174</td> <td>8</td> </tr> </tbody> </table>	id	countryv	flag	2	Spain	/static/images/spain.jpg	id	first_name	last_name	image	count	national_t	right_han	left_hand	world_ran	weight	height	cap_numt	12	Maica	Garcia Godoy	/static/images/garcia_godoy.jpg	2	1	1	0	7	90	188	11	13	Anni	Esper Llaquet	/static/images/anni_esper.jpg	2	1	1	0	8	67	180	3	14	Elena	Ruiz	/static/images/elena_ruiz.jpg	2	1	1	0	9	59	170	7	15	Beatriz	Ortiz	/static/images/beatriz_ortiz.jpg	2	1	1	0	10	65	176	4	18	Giulia	Emmolo	/static/images/giulia_emmolo.jpg	2	0	0	1	NULL	67	170	9	19	Pili	Peña	/static/images/pili_peña.jpg	2	1	1	1	NULL	61	174	8
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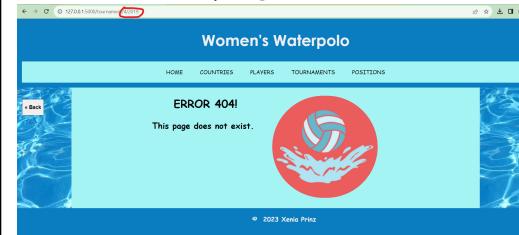
country_id	tournament_id
8	2
2	2
1	2
14	2
3	2
10	2
9	2
4	2
20	2
6	2

X

Aquatic
2019
(id =
3/2019)



Data integrity issue for the last tournament on the 'Tournament' page.
But it fails gracefully and leads to the error404 page.



Tournament table: (tournament_id = 4)

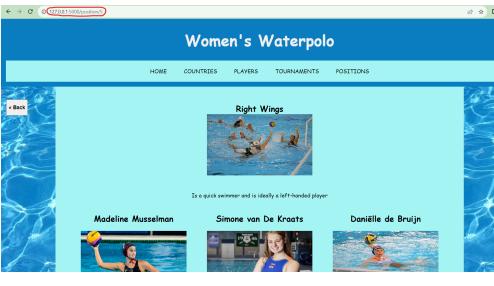
id	name	id	year	matches
4	3	2019	48	

TournamentName table:

id	tournament_name	description	logo
3	Women's Water Polo at the World Aquatics Championships	Held every 2 years	/static/images/placeholder.jpg

CountryTournament table:

country_id	tournament_id
8	4
2	4
3	4
1	4
5	4
12	4
10	4
11	4
9	4
17	4
4	4
7	4
20	4
6	4
16	4
18	4

<input checked="" type="checkbox"/>	indiv_tournament to indiv_country	Hungary (id = 1)			Tournament table: <table border="1"> <thead> <tr> <th>id</th> <th>name</th> <th>id</th> <th>year</th> <th>matches</th> </tr> </thead> <tbody> <tr> <td>2</td> <td>2</td> <td>2</td> <td>2020</td> <td>32</td> </tr> </tbody> </table>	id	name	id	year	matches	2	2	2	2020	32										
id	name	id	year	matches																					
2	2	2	2020	32																					
<input checked="" type="checkbox"/>	All positions to indiv_position	Right Wing (id = 5)			Position table: <table border="1"> <thead> <tr> <th>id</th> <th>position</th> <th>description</th> <th>image</th> <th>eos copyright</th> </tr> </thead> <tbody> <tr> <td>5</td> <td>Right Wing</td> <td>Is a quick swimmer and is ideally a left-handed player</td> <td>/static/images/right_wing.jpg</td> <td>Legado (https://www.flickr.com/photos/lma2019/)</td> </tr> </tbody> </table> PlayerPosition table: <table border="1"> <thead> <tr> <th>player_id</th> <th>position_id</th> </tr> </thead> <tbody> <tr> <td>7</td> <td>5</td> </tr> <tr> <td>9</td> <td>5</td> </tr> <tr> <td>17</td> <td>5</td> </tr> <tr> <td>19</td> <td>5</td> </tr> </tbody> </table>	id	position	description	image	eos copyright	5	Right Wing	Is a quick swimmer and is ideally a left-handed player	/static/images/right_wing.jpg	Legado (https://www.flickr.com/photos/lma2019/)	player_id	position_id	7	5	9	5	17	5	19	5
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19	5																								

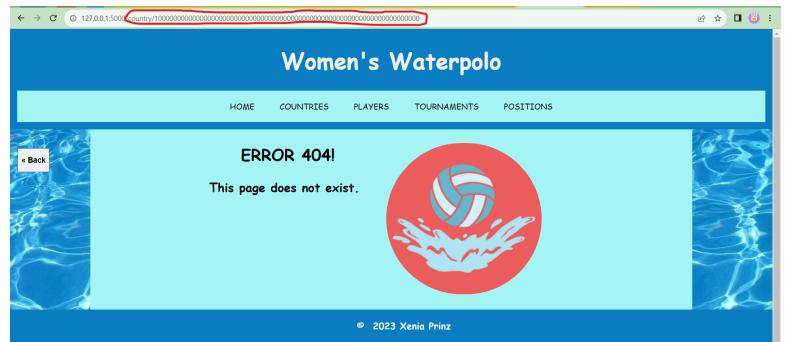
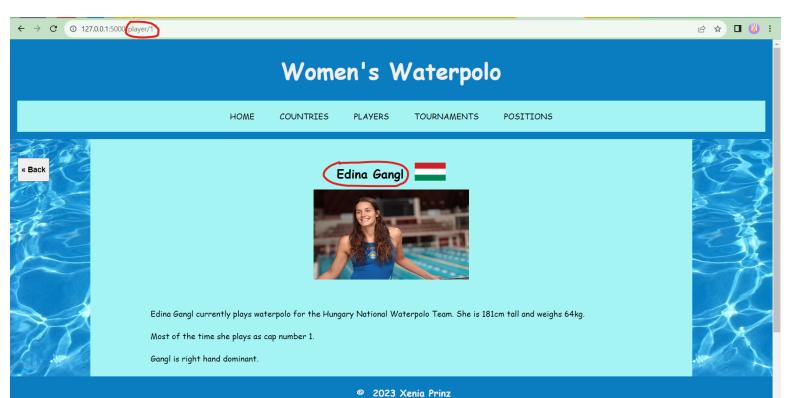
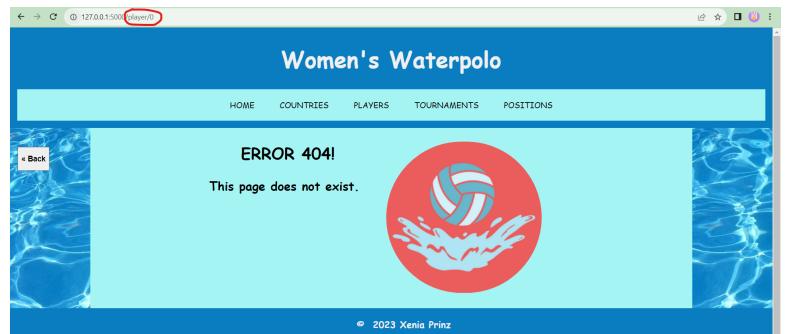
<input checked="" type="checkbox"/>	indiv_position to indiv_player	Rita Keszthelyi	 	Position table: <table border="1"> <thead> <tr> <th>id</th><th>position</th><th>description</th></tr> </thead> <tbody> <tr> <td>2</td><td>Left Driver</td><td>Is ideally right-handed and is an excellent long range shooter</td></tr> </tbody> </table> PlayerPosition table: <table border="1"> <thead> <tr> <th>player_id</th><th>position_id</th></tr> </thead> <tbody> <tr> <td>2</td><td>2</td></tr> <tr> <td>6</td><td>2</td></tr> <tr> <td>3</td><td>2</td></tr> <tr> <td>7</td><td>2</td></tr> <tr> <td>10</td><td>2</td></tr> <tr> <td>13</td><td>2</td></tr> <tr> <td>14</td><td>2</td></tr> <tr> <td>15</td><td>2</td></tr> </tbody> </table> Player table: <table border="1"> <thead> <tr> <th>id</th><th>first name</th><th>last name</th><th>image</th><th>count</th><th>national</th><th>right_han</th><th>left_hand</th><th>world_ran</th><th>weight</th><th>height</th><th>cap numt</th></tr> </thead> <tbody> <tr> <td>10</td><td>Rita</td><td>Keszthelyi</td><td>/static/images/rita_keszthelyi.jpg</td><td>1</td><td>1</td><td>1</td><td>0</td><td>5</td><td>67</td><td>178</td><td>8</td></tr> </tbody> </table>	id	position	description	2	Left Driver	Is ideally right-handed and is an excellent long range shooter	player_id	position_id	2	2	6	2	3	2	7	2	10	2	13	2	14	2	15	2	id	first name	last name	image	count	national	right_han	left_hand	world_ran	weight	height	cap numt	10	Rita	Keszthelyi	/static/images/rita_keszthelyi.jpg	1	1	1	0	5	67	178	8
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Boundary Testing

Tested the boundary id's from each page to ensure that they lead to the correct location (error404 page or the correct individual page)

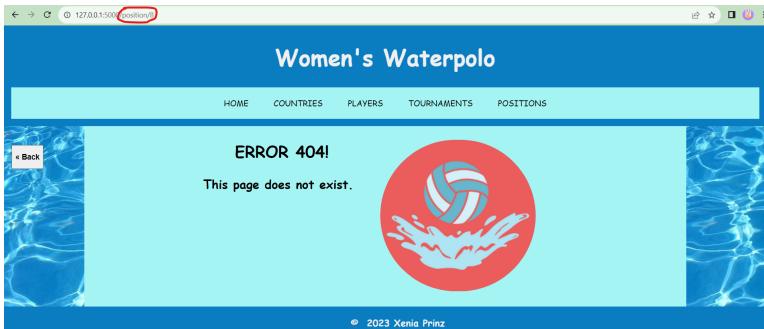
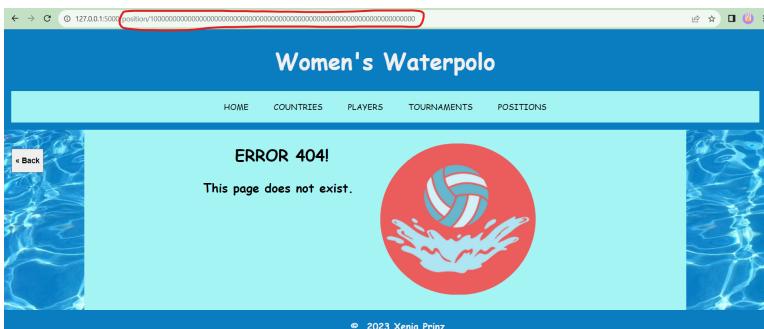
Testing Table:

Page tested	Boundary	Page it should show	Page showed	Did it work?
indiv_country page	Lowest id in 'Country' table (id=1)	Should show the indiv_country page for Hungary (id=1)		Yes

		<p>Added an if statement that calls the 'error404' function:</p> <pre>if id > 9223372036854775807: abort(404)</pre>		Yes
indiv_player page	Lowest id in 'Player' table (id=1)	Should show the indiv_player page for Edina Gangl (id=1)		Yes
	id = 0	Should show error page → as no player in the database has the id of 0		Yes

	<p>id = 4 and id = 5</p>	<p>Should show error page → as they don't have an entry in the database</p> <table border="1"> <thead> <tr> <th></th><th>id</th><th>first_name</th><th>last_name</th><th>image</th></tr> </thead> <tbody> <tr><td>1:</td><td>1</td><td>Edina</td><td>Gangl</td><td>/stat</td></tr> <tr><td>2:</td><td>2</td><td>Dorottya</td><td>Szilágyi</td><td>/stat</td></tr> <tr><td>3:</td><td>3</td><td>Maggie</td><td>Steffens</td><td>/stat</td></tr> <tr><td>6:</td><td>6</td><td>Vanda</td><td>Vályi</td><td>/stat</td></tr> <tr><td>7:</td><td>7</td><td>Madelaine</td><td>Musselman</td><td>/stat</td></tr> <tr><td>8:</td><td>8</td><td>Ashleigh</td><td>Johnson</td><td>/stat</td></tr> <tr><td>9:</td><td>9</td><td>Simonne</td><td>van De Kraats</td><td>/stat</td></tr> <tr><td>10:</td><td>10</td><td>Rita</td><td>Keszthelyi</td><td>/stat</td></tr> <tr><td>11:</td><td>11</td><td>Rebecca</td><td>Parkes</td><td>/stat</td></tr> <tr><td>12:</td><td>12</td><td>Maica</td><td>Garcia Godoy</td><td>/stat</td></tr> <tr><td>13:</td><td>13</td><td>Anni</td><td>Esparr Laquet</td><td>/stat</td></tr> <tr><td>14:</td><td>14</td><td>Elena</td><td>Ruiz</td><td>/stat</td></tr> <tr><td>15:</td><td>15</td><td>Beatriz</td><td>Ortiz</td><td>/stat</td></tr> <tr><td>16:</td><td>16</td><td>Patricia</td><td>Horváth</td><td>/stat</td></tr> <tr><td>17:</td><td>17</td><td>Danielle</td><td>de Brujin</td><td>/stat</td></tr> <tr><td>18:</td><td>18</td><td>Giulia</td><td>Emmolo</td><td>/stat</td></tr> <tr><td>19:</td><td>19</td><td>Pilli</td><td>Peña</td><td>/stat</td></tr> </tbody> </table>		id	first_name	last_name	image	1:	1	Edina	Gangl	/stat	2:	2	Dorottya	Szilágyi	/stat	3:	3	Maggie	Steffens	/stat	6:	6	Vanda	Vályi	/stat	7:	7	Madelaine	Musselman	/stat	8:	8	Ashleigh	Johnson	/stat	9:	9	Simonne	van De Kraats	/stat	10:	10	Rita	Keszthelyi	/stat	11:	11	Rebecca	Parkes	/stat	12:	12	Maica	Garcia Godoy	/stat	13:	13	Anni	Esparr Laquet	/stat	14:	14	Elena	Ruiz	/stat	15:	15	Beatriz	Ortiz	/stat	16:	16	Patricia	Horváth	/stat	17:	17	Danielle	de Brujin	/stat	18:	18	Giulia	Emmolo	/stat	19:	19	Pilli	Peña	/stat		<p>Yes</p>
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	<p>Highest id in 'Player' table (id = 22)</p>	<p>Should show the indiv_player page for Jessica Milicich (id=22)</p>		<p>Yes</p>																																																																																										
	<p>id = 23</p>	<p>Should show error page → as no player in the database has the id of 23</p>		<p>Yes</p>																																																																																										

	Lowest id in 'Position' table (id=1)	Should show the indiv_player page for Left Wing (id=1)		Yes
	id = 0	Should show error page → as no position in the database has the id of 0		Yes
	Highest id in 'Position' table (id = 7)	Should show the indiv_position page for Goalkeeper (id=7)		Yes

	id = 8	Should show error page → as no position in the database has the id of 8		Yes
	id = 100000000000000 000000000000000 000000000000000 000000000000000 000000000000000	Should show error page → as the id doesn't exist in the database		Yes

Iteration 6:

Ideas for improvement if time allowed it:

- Allows the user to add/update data into the database using a form (login credentials are required for being able to edit database → prevents anyone from adding random information that hasn't been verified)
 - Winner of tournament shown for each indiv_tournament
-

Relevant Implications - Database:

When designing the database that worked alongside my website I kept the relevant implications of future proofing, legal and intellectual property in mind.

The first implication I addressed was future proofing. Future proofing is about looking at the long term issue with keeping information stored in a database. When creating a database we have to consider how the data entries will be kept up to date. By future proofing, you ensure that the database can continuously be developed and modernised with the latest relevant events. For example, my database about water polo players will constantly need updating when new tournaments take place, new players appear or when current players retire. I have addressed this by making my tables and columns in the SQLite database easy to understand, which enables the editor to enter new data values with minimised confusion. This is important because without a logical system for entering new information, the database would not gain a lot of new information and go out of date. If the database were to go out of date, the user would no longer be able to learn about recent events in women's water polo and would be given incorrect/out-dated information. Therefore, by future proofing my database, I have enabled the database to be easily kept up to date, ultimately enhancing the user experience.

For future improvement, I could further address the relevant implication of future proofing by creating a page on the website that converts user input into SQL queries that alter/update the database directly. If this idea were developed in the future, it would be important that this page requires login credentials only available to authorised users, to prevent random users from changing the reliable information in the database to misleading, incorrect information.

The other relevant implications my database addresses are intellectual property and legal.

Intellectual property refers to the protection of any ideas owned by other people. Intellectual property is a very important relevant implication because it is important to credit the owner of any content, such as photographs. As my final project includes a lot of photographs of water polo players and some relevant logos which I found on the internet, I ensured that I credited the owner of each image I used. I achieved this by creating a copyright column in my database tables that included the owner's name, the location I found the image and any copyright information or other licence.

eg.

waterpolo			Table name:	Position
	Name	Data type	Primary Key	
1	id	INTEGER	🔑	
2	position	TEXT		
3	description	TEXT		
4	image	TEXT		
5	pos_copyright	TEXT		

Legal is another very important relevant implication to factor in when storing other people's property in the database. The legal implication looks at whether or not the database follows the current laws regarding things such as copyrights and the harmful digital communications act.

I addressed the legal implication of using copyrighted images and logos, by contacting the owners and asking for

permission (as you don't have permission to use copyrighted images just by crediting the owner of the copyright). If the permission is granted, I would have the legal licence to use their works. Unfortunately, none of the websites or companies replied to my requests.

Concept called 'Fair Dealing' in the NZ copyright law:

- 'Fair Dealing' is an exception in the NZ copyright law that allows someone to use copyrighted material without infringing the copyright if the purpose is 'fair'.
- I use a limited amount of copyrighted material in my database but as it is used alongside information that is used for the purpose of informing and educating, my use can be argued as 'fair', (giving me an exemption from the copyright breach). My use is for a school project which can also be considered as private study/research and is not used commercially.

"

If, having taken into account these considerations, the use can be characterized as 'fair' and it was for the purpose of research, private study, education, satire, parody, criticism, review or news reporting, then it will fall within the fair dealing exception and will not require permission from the copyright owner. In addition, if your purpose is criticism, review or news reporting you must also mention the source and author of the work.

"

While this 'Fair Dealing' concept could exempt me from some copyright violations, I resorted to using most of the images for my database from the creative commons (public permission of use is granted when attribution is given), free to use images and resources in the public domain. I decided this was a safer option for approaching the legal implication of using images owned by other people.

Although I addressed the legal and intellectual property implications to the best of my ability, to fully address the legal implication of using some copyrighted images in the future, I would need to follow up my requests for a legal copyright licence.

Addressing Intellectual Property/Legal Implication Evidence:

- Flags are public domain therefore don't require permission → are legally available for free use

Company/Website	My Email	Website's Answer
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Olympic Committee	<p>Permission to use logo/images ⓘ</p> <p>Xenia Prinz <x010@burnside.school.nz> to Xenia Prinz</p> <p>Hello, I am a year 12 student at Burnside High School in New Zealand and I am currently making a website about women's water polo in Software Engineering class. I was wondering if I could get permission to use the following logos/images. I would be able to cite the images however you require in the caption of the image on my website. My final website containing the images will NOT be published online and will only be distributed to a few teachers for the purpose of marking my assignment.</p> <p>The images/logos I would like to use on my website are:</p>    <p>I look forward to hearing from you, Xenia Prinz</p>	No reply
USA Water Polo (through SidearmSports)	<p>Permission for using images ⓘ</p> <p>Xenia Prinz <x010@burnside.school.nz> to Xenia Prinz</p> <p>Hello, I am a year 12 student at Burnside High School in New Zealand and I am currently making a website about women's water polo in Software Engineering class. I was wondering if I could get permission to use some of the pictures I found on the USA Women's Water Polo website. I would be able to cite the images however you require in the caption of the image on my website. My final website containing the images will NOT be published online and will only be distributed to a few teachers for the purpose of marking my assignment.</p> <p>The images I would like to use on my website are:</p>  <p>(from https://usawaterpolo.org/news/2018/1/3/Maddie_Musselman_Makes_Her_Mark_With_Team_USA.aspx)</p>  <p>(from https://usawaterpolo.org/news/2018/4/18/Maggie_Steffens_Signs_Endorsement_Deal_With_RockTape.aspx)</p>  <p>(from https://usawaterpolo.org/news/2015/1/18/World_Championship_MVP_Rachel_Fattal_Refects_On_Big_Summer_Bijou_Plans.aspx)</p>  <p>(from https://usawaterpolo.org/news/2015/3/12/general-brinda-villa-nominated-for-the-us-olympic-paralympic-hall-of-fame.aspx)</p> <p>I look forward to hearing back from you, Xenia Prinz</p>	No reply
World Aquatics	<p>Permission for using logos ⓘ</p> <p>Xenia Prinz <x010@burnside.school.nz> to Xenia Prinz</p> <p>Hello, I am a year 12 student at Burnside High School in New Zealand and I am currently making a website about women's water polo in Software Engineering class. I was wondering if I could get permission to use the following two logos. I would be able to cite the images however you require in the caption of the image on my website. My final website containing the images will NOT be published online and will only be distributed to a few teachers for the purpose of marking my assignment.</p> <p>The images/logos I would like to use on my website are:</p>   <p>I look forward to hearing back from you, Xenia Prinz</p>	No reply

Relevant Implications - Website:

While making my website I kept the relevant implications in mind, to design a website that would work well and look good for the user. The main relevant implications I focussed on were usability, functionality and aesthetics.

The first implication I addressed was aesthetics. Aesthetics is all about how the website looks and whether or not it appeals to the target audience. The way the website looks is important because an organised website layout with well coordinated colour attracts more attention from the user and therefore enhances their experience.

I ensured nice aesthetics by aligning my images (in rows and columns) and centre aligning text. This alignment was very important to ensure that the user is able to easily read and interpret the information on the website because without it the user would probably give up and visit a better presented website instead. The organisation of the website has a direct effect on the user's experience.

I also put all my main content in a 'div' container with a solid background. This helped draw the user's attention away from the patterned background, behind the 'div', and towards the actual content. I kept my topic of waterpolo in mind when choosing my water background because the use of contrast and different tones of blues helps interest the target audience of waterpolo enthusiasts. Additionally, most people draw the connotation between water polo, water and the colour blue. This link established some meaning behind the background and helped visually emphasise the topic of the website (especially for people who prefer to take in information from pictures). I thought this was a good idea because it helps the user connect the information they are reading with the colours, creating more appeal. By taking these steps, of adding well thought out CSS, my website looks nicer than an unformatted one causing it to be more readable and interesting. This ties in with usability because an interface with good aesthetics and formatting is more readable and therefore more usable.

Another way I planned my user interface to be aesthetically pleasing was by considering nice fonts and text colour. This was an important step because the text needs to be presented in a nice way but still be readable. I had to plan out how I would use font colours on certain parts of the page so that the text was readable on the blue background.

I used repetition across the various different pages on my website to show the user that the layout and colours were well thought out and a common theme in my website.

Another relevant implication I addressed in my website was functionality. Ensuring good functionality of a website involves fixing any glitches where the site could break and making all of the links work. This is vital for a website because if the website were to crash the user would get confused and have a bad user experience. A website that consistently shows the correct information and leads to the correct links is important for keeping the users happy and engaged.

I addressed the relevant implication of functionality by linking all my website pages properly and having a range of users use my website. This helped me find gaps, problems and identify where a page was missing. My boundary case and data integrity testing also allowed me to find and prevent functionality issues because I was trying all sorts of tricks that could break my site.

I also created an error page that would show up if the user did something that the website couldn't do. This is important for directing the user back to the correct pages without giving them a major problem of the website completely crashing. In general, my website is fully functional and doesn't break when the user does something unexpected which is important for ensuring the user's good experience.

Another relevant implication I addressed in my 'Women's Water Polo' website was usability. Usability is about ensuring that the user interface is straightforward and easy for the user to understand without any instructions. Usability can be enhanced by following Nielson's usability heuristics. The main ones I followed were to help users recognize, diagnose, and recover from errors and consistency and standards.

I ensured that users were easily able to recover from errors by including a 'back button' on my error page as well as having the top navigation bar available. This provided the user with several options to return back to existing pages without any difficulty. I also put a back button on individual pages to help the user navigate back to their previous page if they accidentally clicked on the wrong link.

I addressed consistency and standards by having all the links throughout my website behaving the same and having the same layout on each page. This helps the user not have to familiarise themselves with each different page, ultimately making the user interface easier to use.