

# Use Cases

## 1. Create an Account

**Scope:** Bracket-Boys Tournament Bracket Generator

**Level:** User Goal

**Primary Actor:** Tournament organizer, tournament participant

**Stakeholders and Interests:**

- Tournament organizer: must create an account to log results from tournaments and enhance future tournament seeding.
- Tournament participant: must create an account to track tournament results and improve seeding for future tournaments.

**Description:**

New users of the Bracket-Boys web application may create an account through the website to track their tournament results. These results will be taken into account when determining seeds for future tournaments.

**Preconditions:**

- The user has accessed the web page from their browser.
- The user has clicked the "Create New Account" button.

**Basic Flow:**

1. The user enters a unique username in the "Username" field of the HTML form.
2. The user enters a password which is at least 8 characters.
3. The user presses "Create Account" and is returned to the homepage of the Bracket-Boys web application and logged into their account.

**Alternate Flows:**

None

**Exception Flows:**

1. If the user chooses a username which is already registered, they will be taken back to the HTML form and informed that the username is already taken. A message will display telling the user to choose another username.
2. If the user chooses a password which is not at least 8 characters, they will be taken back to the HTML form and a message will display requesting they choose a password which is at least 8 characters.

**Post Conditions:**

- The user's account will be added to the database and a table will be created which automatically stores their results from any tournaments they compete in under that name.

## 2. User Login

**Scope:** Bracket-Boys Tournament Bracket Generator

**Level:** User Goal

**Primary Actor:** Tournament organizer, tournament participant

**Stakeholders and Interests:**

- Tournament organizer: must create an account to log results from tournaments and enhance future tournament seeding.
- Tournament participant: must create an account to track tournament results and improve seeding for future tournaments.

**Description:****Preconditions:**

- The user has accessed the web page from their browser.

**Basic Flow:**

1. The user clicks the "Login" button.
2. The user types their username and password into the username and password fields of the login form.
3. The user clicks the "Login" button at the bottom of the form.

**Alternate Flows:**

None

**Exception Flows:**

1. If the user enters a username and password combination which does not correspond to an account listed on the database, they will be taken back to the login form. A message will be displayed informing them that the username and password they entered does not match any accounts and they will be asked to re-enter their login information.

**Post Conditions:**

- The user will be signed into their account and able to sign up for or create tournaments.

### 3. Create a Tournament Bracket

**Scope:** Bracket-Boys Tournament Bracket Generator

**Level:** User Goal

**Primary Actor:** Tournament organizer, tournament participant

**Stakeholders and Interests:**

- Tournament organizer: wants to create a bracket for tournament with a variable number of participants.
- Tournament participant: wants to view their matches and opponents and track their progress through the tournament.

**Description:**

This use case describes the steps which a user follows to create a tournament using the Bracket-Boys web application. A user accesses the web page and logs into their account. They may then create a tournament bracket by pressing the "Create" button and entering the tournament name and participants. They may choose to use random seeds, enter participant seeds, or use data stored on the tournament database to assign seeds to

participants. They may manually add all participants and/or share a link which other users may follow to independently join the tournament.

**Preconditions:**

- The user has accessed the web page from their browser.
- The user has an account through the website.

**Basic Flow:**

1. The user presses the “Create” button on the homepage to begin creating a bracket.
2. The user is taken to a menu which prompts them to enter the user names of tournament participants.
3. The user may enter a tournament name in an HTML form input.
4. The user may enter seeds for tournament participants or may choose to arrange competitors randomly.
5. The user will press the “Generate Bracket” button after all participants are entered. A bracket will be automatically created to balance

**Alternate Flows:**

1. The tournament creator may also choose to create a tournament with a predetermined size. They may choose this option on the tournament creation menu in addition to or instead of adding tournament participants manually as a list.
2. The user may also add people to the tournament by copying a link from the tournament page. Other users with accounts may follow this link to automatically register for the tournament and the bracket will be updated to include them.

**Exception Flows:**

1. If a person attempts to create or join a tournament while not logged into an account, they will be prompted with an alert telling them to create an account or log in to an existing account. A link to the account creation page will be included with this alert. They may choose to enter a player name for the tournament in lieu of creating an account, but will be informed that their tournament results will not be stored for future seeding.

**Post Conditions:**

- A balanced bracket is created which includes all tournament participants. This bracket can be modified by the tournament organizer to add or remove players.

## 4. Tournament Progress

**Scope:** Bracket-Boys Tournament Bracket Generator

**Level:** User Goal

**Primary Actor:** Tournament organizer, tournament participant

**Stakeholders and Interests:**

- Tournament organizer: match results will be stored in the bracket on the tournament page and can be updated by the tournament organizer.
- Tournament participant: the participant’s matches and results through the tournament are displayed on the bracket on the tournament page.

**Description:**

Tournament organizers and players can record match results by clicking the name of the winning player and confirming the result. This will cause the bracket to display the winner by highlighting their name and advancing them to the next round of the bracket. Results may be corrected by the organizer or participants if they are entered in error.

**Preconditions:**

- The participant is registered for the tournament.
- A match has been played and the tournament organizer has a result to input into the bracket.

**Basic Flow:**

1. The tournament organizer or participant selects the name of the match winner.
2. The organizer or participant presses the "Confirm Result" button at the top of the page to finalize the result.
3. The result is committed to the bracket.

**Alternate Flows:**

1. The tournament organizer may disqualify participants if they deem it necessary. This case will be displayed on the bracket by greying out the participant's name and their next opponent will progress to the next round automatically.
2. Tournament organizers or participants may change the winner of a given match if the wrong name was selected. They may click the name of the other participant and press the "Confirm Result" button at the top of the page to commit the new result.

**Exception Flows:**

1. If no winner is chosen for a match, the opponent scheduled to face the winner will progress to the next round automatically. This strategy will also be used to balance the bracket in the case of an odd number of players.

**Post Conditions:**

- The winner's name is highlighted in the match cell and their name is added to the next match in the bracket.
- The match result is recorded in the winner's and loser's profiles in the database.

## 5. Seeding Based on Past Results

**Scope:** Bracket-Boys Tournament Bracket Generator

**Level:** Backend Goal

**Primary Actor:** Bracket-Boys Web Application

**Stakeholders and Interests:**

- Tournament organizer: past results may be used to automatically generate seeds for tournament participants based on past results.
- Tournament participant: past results determine seeding for future tournaments.

**Description:**

Players will be assigned seeds in order of their ELOs stored in the Bracket-Boys database. Players gain ELO by winning games and lose ELO by losing games. A player's ELO can never be negative. As a result, players who have participated in tournaments through the

Bracket-Boys web application will be seeded higher than newcomers. Participants with no results

**Preconditions:**

- A user has an account and has competed in at least one tournament through the Bracket-Boys web application.
- A tournament organizer is in the process of creating a tournament and has chosen to seed automatically or a participant is independently registering through a shared link to the tournament site.
- Each user in the database is assigned an ELO rating based on previous tournament wins and losses.

**Basic Flow:**

1. The app searches for the names of each player in the database and adds their names and ELO ratings to a list.
2. A sorting algorithm is used to sort players by ELO rating and assign them a seed.
3. The top seeded player is matched with the lowest seeded player and added to the bracket. Then each is removed from the list and the process is repeated until all players have a match.

**Alternate Flows:**

1. The user will be seeded randomly if they do not have any past results stored in the database.
2. Players will also be sorted randomly if they have the same ELO as other players in the tournament, including an ELO rating of 0.
3. If the tournament has an odd number of players in a given round, the top seed receives a bye to the next round.

**Exception Flows:**

1. Players without an account or stored results are assigned an ELO of 0.

**Post Conditions:**

- A balanced bracket will be generated which attempts to match players with a high number of career wins to high seeds and players with a low number of wins with low seeds.