

# Karting report

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## 1 Requirements analysis

- User groups
- Use cases
  - User
  - Intranet
  - Extranet
  - Internet
- Data dictionary
  - Primary entities
  - Users' entities
  - Auxiliary entities
- Site views

## 2 Data model

- Objects' classification

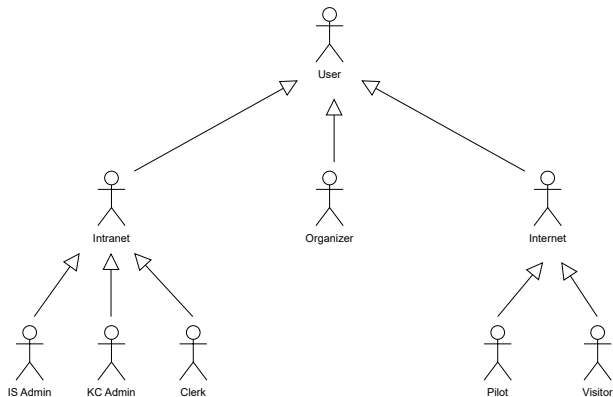
## 3 Hypertext model

- Coarse hypertext model

## 4 Future work

WeRace is a web information system that allows different actors to cooperate to give the best experience possible to the karting community. Visitors can explore our website, discover tracks and karting centers near to where they live and also events that, like a tour, take place in different tracks and karting centers. When visitors feel ready to have their first race, they can register as pilots from home or at the closest karting center. WeRace allows pilots to organize their own races by choosing a track of a karting center, picking a date and a time and inserting the names of the pilots that will participate, then the system will create a reservation that the clerk of the target karting center will confirm. Organizers can create events, that is, a sequence of races that can take place on different tracks, they can insert pilots of their choice and they can accept applications from pilots that want to participate. Similarly to before, the system will create reservations that the clerks of the karting centers will confirm. Karting center administrators can manage their karting centers by adding new tracks and go-karts or registering new pilots and clerks. Clerks can confirm reservations from pilots and organizers and moderate reviews that pilots write about karting centers, tracks and events. The information system administrator can manage the system by creating new karting centers, karting center administrators and organizers, they can also take care of all the entities that help the visitors to navigate the website, such as cities, all the different categories or ranges useful to filter the karting centers, tracks and events.

# User groups



# Specification sheet

Group name	<b>User</b>
Description	The generic user can explore karting centers, tracks, events, the races that took place on tracks, the races an event organized and the races a particular pilot had. Different filtering mechanisms are made available to the user to help him in his search.
Profile data	None
Supergroup	None
Subgroups	Intranet, Organizer, Internet
Use cases	<ul style="list-style-type: none"><li>- Explore karting centers by city</li><li>- Explore karting centers by number of races</li><li>- Explore karting centers by number of pilots</li><li>- Explore karting centers by number of events</li><li>- Explore karting centers by average review score</li><li>- View all karting centers hosting upcoming events</li><li>- Read details on karting center</li><li>- Read reviews on karting center</li><li>- Explore tracks in a karting center</li><li>- Explore events by karting center</li><li>- Explore tracks by asphalt type</li><li>- Explore tracks by difficulty</li><li>- Explore tracks by length</li><li>- Explore tracks by city</li><li>- Explore tracks by number of races</li><li>- Explore tracks by number of pilots</li><li>- Explore tracks by number of events</li><li>- Explore tracks by average review score</li></ul>

# Specification sheet

Use cases	<ul style="list-style-type: none"><li>- Read details on track</li><li>- Read reviews on track</li><li>- Explore events by track</li><li>- Explore leaderboards</li><li>- Explore races from track</li><li>- Explore lap-times of a race</li><li>- Explore pilots from track</li><li>- Read details on pilot</li><li>- Explore events from pilot</li><li>- Explore races from pilot</li><li>- Explore events by city</li><li>- Explore events by average review score</li><li>- Explore events by price</li><li>- Explore events by category</li><li>- Explore events by popularity</li><li>- Explore upcoming events</li><li>- Explore controversial events</li><li>- Read details on event</li><li>- Explore karting centers by event</li><li>- Explore tracks by event</li><li>- Explore pilots from event</li><li>- Explore races from event</li><li>- Read reviews on event</li></ul>
Read	Karting center, Track (and Popular track) and implicitly Timetable, Race, Pilot, Event (and its subentities), Review on karting center, Review on track, Review on event, Leaderboard, Lap-time, City, Go-kart model, Track asphalt type, Track length range, Review score range, N. pilots range, N. races range, N. events range, Price range, Event category.
Write	None

# Specification sheet

Group name	<b>Intranet</b>
Description	The users of the intranet side of kc are all registered and act on the karting center in different ways.
Profile data	Username, Password, Email, Name, Surname, Address
Supergroup	User
Subgroups	Information system administrator, Karting center administrator, Clerk
Use cases	- Login/Logout - Read my details
Read	Everything the generic user can read
Write	Karting center (in different ways)

# Specification sheet

Group name	<b>Information system administrator</b>
Description	The information system administrator has the right to create, update and delete karting centers, karting centers' administrators, organizers and all the filtering mechanisms that help the user to navigate the website; then he can do everything that the karting center administrator (and thus the clerk) can do by authenticating as one of them.
Profile data	None
Supergroup	Intranet
Subgroups	None
Use cases	<ul style="list-style-type: none"><li>- Explore karting center administrators</li><li>- Read details on karting center administrator</li><li>- U.D. karting center administrator</li><li>- Create karting center administrator</li><li>- Explore karting centers</li><li>- Read details on karting center</li><li>- U.D. karting center</li><li>- Create karting center</li><li>- Explore organizers</li><li>- Read details on organizer</li><li>- U.D. organizer</li><li>- Create organizer</li><li>- C.R.U.D. cities</li><li>- C.R.U.D. go-kart models</li><li>- C.R.U.D. track asphalt types</li><li>- C.R.U.D. track difficulties</li></ul>



# Specification sheet

Use cases	<ul style="list-style-type: none"><li>- C.R.U.D. track length ranges</li><li>- C.R.U.D. review score ranges</li><li>- C.R.U.D. n. pilots ranges</li><li>- C.R.U.D. n. races ranges</li><li>- C.R.U.D. n. events ranges</li><li>- C.R.U.D. price ranges</li><li>- C.R.U.D. event categories</li></ul>
Read	Everything
Write	Karting center, Karting center administrator, Organizer, City, Go-kart model, Track asphalt type, Track length range, Review score range, N. pilots range, N. races range, N. events range, Price range, Event category, everything that every karting center administrator can write (thus, also everything that every clerk can write) and everything that every organizer can write.

# Specification sheet

Group name	<b>Karting center administrator</b>
Description	The karting center administrator can only operating on the karting centers he is in charge of (every karting center can have at most one administrator), he can create, update or delete tracks, go-karts dedicated to tracks, races (and implicitly the associated reservations), clerks and pilots. He can also do everything that the clerk can do by authenticating as one of them.
Profile data	None
Supergroup	Intranet
Subgroups	None
Use cases	<ul style="list-style-type: none"><li>- Explore my karting centers</li><li>- Explore pilots by karting center</li><li>- Explore pilots</li><li>- Read details on pilot</li><li>- U.D. pilot</li><li>- Create pilot</li><li>- Explore clerks by karting center</li><li>- Explore clerks</li><li>- Read details on clerk</li><li>- U.D. clerk</li><li>- Create clerk</li></ul>

# Specification sheet

Use cases	<ul style="list-style-type: none"><li>- Explore tracks (related to my karting centers)</li><li>- Explore tracks by karting center</li><li>- Read details on track</li><li>- U.D. track</li><li>- Create track</li><li>- Explore races (related to my karting centers)</li><li>- Read details on race</li><li>- U.D. race</li><li>- Create race</li><li>- Explore go-karts dedicated to tracks of my karting centers</li><li>- U.D. go-kart dedicated to track</li><li>- Create go-kart</li></ul>
Read	Clerks (related to my karting centers), go-karts (related to my karting centers), everything that every clerk of my karting centers can read, everything that the generic user can read.
Write	Karting center (only mine, only to update, not to create nor delete), Clerk (only mine), Track (only mine), Race (only for my karting centers) and implicitly Reservation, Go-kart (only for my karting centers), everything that every clerk of my karting centers can write.

# Specification sheet

Group name	<b>Clerk</b>
Description	The clerk of a karting center can help the administrator by confirming the reservations requested by pilots and organizers, he can also moderate the reviews that pilots write about the karting center, the tracks and the events. Every clerk works for at most one karting center and every karting center can have more than one clerk.
Profile data	None
Supergroup	Intranet
Subgroups	None
Use cases	<ul style="list-style-type: none"> <li>- Explore reservations (related to my karting center)</li> <li>- Confirm reservation</li> <li>- Explore reviews on my karting center</li> <li>- Read review on karting center</li> <li>- Delete review on karting center</li> <li>- Explore reviews on the tracks of my karting center</li> <li>- Read review on track</li> <li>- Delete review on track</li> <li>- Explore reviews on events (that involved my karting center)</li> <li>- Read review on event</li> <li>- Delete review on event</li> </ul>
Read	Reservation (only for my karting centers), everything that the generic user can read.
Write	<p>Review on Karting center (only mine, only deleting), Review on Track (only of mine karting center, only deleting), Review on Event (only involving my karting center, only deleting), Reservation (only for my karting centers, only to confirm).</p> <p>Indirectly: Karting center, Track, Event (when deleting a review, implicitly some of their attributes are altered, e.g. <i>avgReviewScore</i>, <i>nReviews</i>).</p>

# Specification sheet

Group name	<b>Organizer</b>
Description	The organizer can create events that pilots with different experience levels can participate to, competing on different tracks of different karting centers. The organizer can invite pilots by inserting their names when creating the event (in the same way the pilot can) and can accept applications from pilots.
Profile data	Username, Password, Email, Name, Surname, Address
Supergroup	User
Subgroups	None
Use cases	<ul style="list-style-type: none"><li>- Explore my events</li><li>- Read details on my event</li><li>- U.D. events</li><li>- Create event</li><li>- Explore not yet confirmed applications</li><li>- Confirm application</li><li>- Explore races of the event</li><li>- Read details on race</li><li>- U.D. race</li><li>- Create race</li></ul>
Read	Application (only to my events), everything that the generic user can read.
Write	Event (C.R.U.D. only mine), Race (C.R.U.D. only for my events) and implicitly Reservation, Application (only to my events, only to confirm). Indirectly: Karting center, Track, Pilot (when organizing events, implicitly some of their attributes are altered, e.g. <i>nRaces</i> , <i>nEvents</i> ).

# Specification sheet

Group name	<b>Internet</b>
Description	The internet side of WeRace has mainly an explorative role.
Profile data	None
Supergroup	User
Subgroups	Pilot, Visitor
Use cases	None
Read	Everything the generic user can read
Write	None

# Specification sheet

Group name	<b>Pilot</b>
Description	The pilot is a registered user, he can ask for reservations to have custom races at a track of his choice and with pilots of his choice, he can also apply to events and finally he can write reviews on karting centers, tracks and events. He can do everything that the generic user can do.
Profile data	Username, Password, Email, Name, Surname, Address, Age, Weight
Supergroup	Internet
Subgroups	None
Use cases	<ul style="list-style-type: none"><li>- Login/Logout</li><li>- Read my details</li><li>- Explore not yet confirmed reservations</li><li>- C.U.D. races and reservations - Explore confirmed reservations</li><li>- Explore my past races</li><li>- Read details on race</li><li>- Create review of karting center</li><li>- Create review of track</li><li>- Explore upcoming events applied to but not confirmed yet</li><li>- Explore upcoming events not applied to</li><li>- Explore my past events</li><li>- Apply to an event</li><li>- Read details on event</li><li>- Create review of event</li></ul>

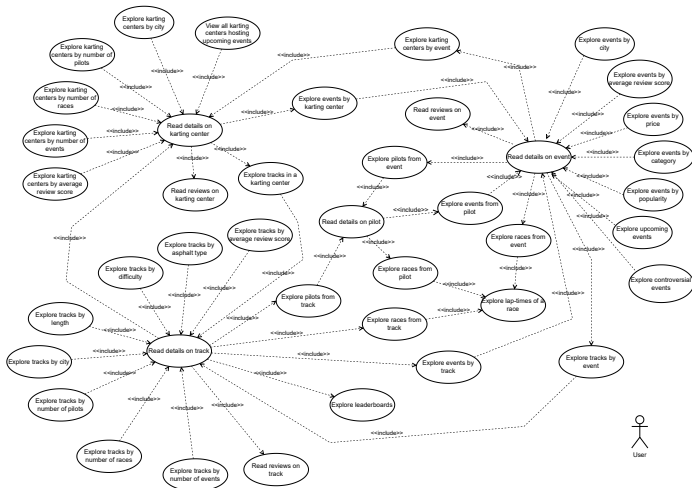
# Specification sheet

Read	Reservation (only mine), Race (those that still have to take place, created by me) and implicitly Review, Application (only mine), everything that the internet user can read.
Write	Race (only mine) and implicitly Reservation, Review on karting center, Review on track, Review on event, Application (only mine). Indirectly: Karting center, Track, Event (when participating to a race or writing a review, implicitly some of their attributes are altered, e.g. <i>nPilots</i> , <i>nRaces</i> , <i>avgReviewScore</i> ).



# Specification sheet

Group name	<b>Visitor</b>
Description	The visitor has a passive and yet fundamental role to WeRace, he can explore the website and, if he feels involved enough, can sign up on his own or at any karting center: obviously if he gets registered at karting center A will be able to ask for reservations for custom races to any other karting center partner of WeRace.
Profile data	None
Supergroup	Internet
Subgroups	None
Use cases	- Register
Read	Everything the internet user can read
Write	None



Title	<b>Explore karting centers by city</b>
Goal	The user explores karting centers selecting one city at a time.
Precondition	The user is in the area (of the public view) dedicated to karting centers.
Postcondition	The user obtains the list of karting centers from which he can move on.
Workflow	<ul style="list-style-type: none"> <li>- The user moves to the area dedicated to karting centers.</li> <li>- The user selects a city.</li> </ul>

Title	<b>Explore karting centers by number of races</b>
Goal	The user explores karting centers selecting one range of number of races (that were hosted on any of the tracks of the karting center) at a time.
Precondition	The user is in the area (of the public view) dedicated to karting centers.
Postcondition	The user obtains the list of karting centers from which he can move on.
Workflow	<ul style="list-style-type: none"> <li>- The user moves to the area dedicated to karting centers.</li> <li>- The user selects a range of number of races.</li> </ul>

Title	<b>Explore karting centers by number of pilots</b>
Goal	The user explores karting centers selecting one range of number of pilots (who had a race on any of the tracks of the karting center) at a time.
Precondition	The user is in the area (of the public view) dedicated to karting centers.
Postcondition	The user obtains the list of karting centers from which he can move on.
Workflow	<ul style="list-style-type: none"> <li>- The user moves to the area dedicated to karting centers.</li> <li>- The user selects a range of number of pilots.</li> </ul>

Title	<b>Explore karting centers by number of events</b>
Goal	The user explores karting centers selecting one range of number of events (that had at least one race hosted on any of the tracks of the karting center) at a time.
Precondition	The user is in the area (of the public view) dedicated to karting centers.
Postcondition	The user obtains the list of karting centers from which he can move on.
Workflow	<ul style="list-style-type: none"> <li>- The user moves to the area dedicated to karting centers.</li> <li>- The user selects a range of number of events.</li> </ul>

Title	<b>Explore karting centers by average review score</b>
Goal	The user explores karting centers selecting one range of average review scores (given to the karting center by all the pilots that had at least one race on one of the tracks of the karting center) at a time.
Precondition	The user is in the area (of the public view) dedicated to karting centers.
Postcondition	The user obtains the list of karting centers from which he can move on.
Workflow	<ul style="list-style-type: none"> <li>- The user moves to the area dedicated to karting centers.</li> <li>- The user selects a range of scores (the ranges are the same for karting centres, tracks and events).</li> </ul>

Title	<b>View all karting centers hosting upcoming events</b>
Goal	The user scrolls through the list of karting centers that are going to host an upcoming event.
Precondition	The user already has this information in the homepage.
Postcondition	The user obtains the list of karting centers from which he can move on.
Workflow	<ul style="list-style-type: none"> <li>- The user reaches the homepage.</li> </ul>

Title	<b>Read details on karting center</b>
Goal	The user chooses one karting center to focus on and reads its details.
Precondition	The user chose a karting center from a list of karting centers (obtained from any of the previous use cases).
Postcondition	The user obtains the details on the karting center and can move on to other related informations (e.g. tracks, reviews)
Workflow	- The user chooses one karting center from a list.

Title	<b>Read reviews on karting center</b>
Goal	The user chooses one karting center to focus on and scrolls the reviews it received (from pilots that had at least one race on one track of the karting center).
Precondition	The user chose a karting center from a list of karting centers (obtained from any of the previous use cases).
Postcondition	The user obtains the reviews on the karting center in the area dedicated to reviews.
Workflow	- The user moves from the page dedicated to the details of the karting center to the page dedicated to reviews through a click.

Title	<b>Explore tracks in a karting center</b>
Goal	The user chooses one karting center to focus on and explores the tracks it offers.
Precondition	The user chose a karting center from a list of karting centers (obtained from any of the previous use cases).
Postcondition	The user obtains the tracks offered by the karting center in the area dedicated to tracks.
Workflow	- The user moves from the page dedicated to the details of the karting center to the page dedicated to tracks through a click.

Title	<b>Explore events by karting center</b>
Goal	The user chooses one karting center to focus on and explores the events that had at least one of their races hosted by a track of the karting center.
Precondition	The user chose a karting center from a list of karting centers (obtained from any of the previous use cases).
Postcondition	The user obtains the events in the area dedicated to events.
Workflow	- The user moves from the page dedicated to the details of the karting center to the page dedicated to events through a click.

Title	<b>Explore tracks by asphalt type</b>
Goal	The user explores tracks selecting one asphalt type at a time.
Precondition	The user is in the area (of the public view) dedicated to tracks.
Postcondition	The user obtains the list of tracks from which he can move on.
Workflow	<ul style="list-style-type: none"> <li>- The user moves to the area dedicated to tracks.</li> <li>- The user selects an asphalt type.</li> </ul>

Title	<b>Explore tracks by difficulty</b>
Goal	The user explores tracks selecting one difficulty at a time.
Precondition	The user is in the area (of the public view) dedicated to tracks.
Postcondition	The user obtains the list of tracks from which he can move on.
Workflow	<ul style="list-style-type: none"> <li>- The user moves to the area dedicated to tracks.</li> <li>- The user selects a difficulty.</li> </ul>



Title	<b>Explore tracks by length</b>
Goal	The user explores tracks selecting one range of lengths at a time.
Precondition	The user is in the area (of the public view) dedicated to tracks.
Postcondition	The user obtains the list of tracks from which he can move on.
Workflow	<ul style="list-style-type: none"> <li>- The user moves to the area dedicated to tracks.</li> <li>- The user selects a range of lengths.</li> </ul>

Title	<b>Explore tracks by city</b>
Goal	The user explores tracks selecting one city at a time.
Precondition	The user is in the area (of the public view) dedicated to tracks.
Postcondition	The user obtains the list of tracks from which he can move on.
Workflow	<ul style="list-style-type: none"> <li>- The user moves to the area dedicated to tracks.</li> <li>- The user selects a city.</li> </ul>

Title	<b>Explore tracks by number of races</b>
Goal	The user explores tracks selecting one range of number of races (that took place on the track) at a time.
Precondition	The user is in the area (of the public view) dedicated to tracks.
Postcondition	The user obtains the list of tracks from which he can move on.
Workflow	<ul style="list-style-type: none"> <li>- The user moves to the area dedicated to tracks.</li> <li>- The user selects a range of number of races.</li> </ul>

Title	<b>Explore tracks by number of pilots</b>
Goal	The user explores tracks selecting one range of number of pilots (who had a race on the track) at a time.
Precondition	The user is in the area (of the public view) dedicated to tracks.
Postcondition	The user obtains the list of tracks from which he can move on.
Workflow	<ul style="list-style-type: none"> <li>- The user moves to the area dedicated to tracks.</li> <li>- The user selects a range of number of pilots.</li> </ul>

Title	<b>Explore tracks by number of events</b>
Goal	The user explores tracks selecting one range of number of events (that had at least one race hosted on the track) at a time.
Precondition	The user is in the area (of the public view) dedicated to tracks.
Postcondition	The user obtains the list of tracks from which he can move on.
Workflow	<ul style="list-style-type: none"> <li>- The user moves to the area dedicated to tracks.</li> <li>- The user selects a range of number of events.</li> </ul>

Title	<b>Explore tracks by average review score</b>
Goal	The user explores tracks selecting one range of average review scores (given to the track by all the pilots that had at least one race on the track) at a time.
Precondition	The user is in the area (of the public view) dedicated to tracks.
Postcondition	The user obtains the list of tracks from which he can move on.
Workflow	<ul style="list-style-type: none"> <li>- The user moves to the area dedicated to tracks.</li> <li>- The user selects a range of scores (the ranges are the same for karting centres, tracks and events).</li> </ul>

Title	<b>Read details on track</b>
Goal	The user chooses one track to focus on and reads its details.
Precondition	The user chose a track from a list of tracks (obtained from any of the previous use cases).
Postcondition	The user obtains the details on the track and can move on to other related informations (e.g. pilots, leaderboards, races, reviews)
Workflow	- The user chooses one karting center from a list.

Title	<b>Read reviews on track</b>
Goal	The user chooses one track to focus on and scrolls the reviews it received (from pilots that had at least one race on it).
Precondition	The user chose a track from a list of tracks (obtained from any of the previous use cases).
Postcondition	The user obtains the reviews on the tracks in the area dedicated to reviews.
Workflow	- The user moves from the area dedicated to the details of the track to the area dedicated to reviews through a click.

Title	<b>Explore events by track</b>
Goal	The user chooses one track to focus on and explores the events that had at least one of their races hosted by the track.
Precondition	The user chose a track from a list of tracks (obtained from any of the previous use cases).
Postcondition	The user obtains the events in the area dedicated to events.
Workflow	- The user moves from the area dedicated to the details of the track to the area dedicated to events through a click.

Title	<b>Explore leaderboards</b>
Goal	The user chooses one track to focus on and explores the leaderboards associated to the track (leaderboards are filtering on the whole record of lap times obtained by pilots in a race, a leaderboard can focus on the last month, the last year, weight...)
Precondition	The user chose a track from a list of tracks (obtained from any of the previous use cases).
Postcondition	The user obtains the list of leaderboards in the area dedicated to leaderboards.
Workflow	- The user moves from the area dedicated to the details of the track to the area dedicated to leaderboards through a click.

Title	<b>Explore races from track</b>
Goal	The user chooses one track to focus on and explores the races that took place on the track.
Precondition	The user chose a track from a list of tracks (obtained from any of the previous use cases).
Postcondition	The user obtains the list of races in the area dedicated to races.
Workflow	- The user moves from the area dedicated to the details of the track to the area dedicated to races through a click.

Title	<b>Explore lap-times of a race</b>
Goal	The user chooses one race to focus on and reads all the lap-times made by all the pilots that participated to the race.
Precondition	The user chose a race from a list of races (obtained from a track, an event or a pilot).
Postcondition	The user obtains the list of lap-times in the area dedicated to lap-times.
Workflow	- The user moves from the area dedicated to the details of the race to the area dedicated to lap-times through a click.

Title	<b>Explore pilots from track</b>
Goal	The user chooses one track to focus on and explores the pilots that had at least one race on the track.
Precondition	The user chose a track from a list of tracks (obtained from any of the previous use cases).
Postcondition	The user obtains the list of pilots in the area dedicated to pilots.
Workflow	- The user moves from the area dedicated to the details of the track to the area dedicated to pilots through a click.

Title	<b>Read details on pilot</b>
Goal	The user chooses one pilot to focus on and reads its details.
Precondition	The user chose a pilot from a list of pilots (obtained from a track, a race, an event).
Postcondition	The user obtains the details on the pilot and can move on to other related informations (e.g. races, events).
Workflow	- The user chooses one pilot from a list.

Title	<b>Explore events from pilot</b>
Goal	The user chooses one pilot to focus on and explores the events that the pilot attended.
Precondition	The user chose a pilot from a list of pilots (obtained from a track, a race, an event).
Postcondition	The user obtains a list of events in the area dedicated to events.
Workflow	- The user moves from the area dedicated to the details of the pilot to the area dedicated to events through a click.

Title	<b>Explore races from pilot</b>
Goal	The user chooses one pilot to focus on and explores the races that the pilot had.
Precondition	The user chose a pilot from a list of pilots (obtained from a track, a race, an event).
Postcondition	The user obtains a list of races in the area dedicated to races.
Workflow	- The user moves from the area dedicated to the details of the pilot to the area dedicated to races through a click.



Title	<b>Explore events by city</b>
Goal	The user explores events selecting one city at a time.
Precondition	The user is in the area (of the public view) dedicated to events.
Postcondition	The user obtains the list of events from which he can move on.
Workflow	<ul style="list-style-type: none"> <li>- The user moves to the area dedicated to events.</li> <li>- The user selects a city.</li> </ul>

Title	<b>Explore events by average review score</b>
Goal	The user explores events selecting one range of average review scores (given to the event by all the pilots that participated to it) at a time.
Precondition	The user is in the area (of the public view) dedicated to events.
Postcondition	The user obtains the list of events from which he can move on.
Workflow	<ul style="list-style-type: none"> <li>- The user moves to the area dedicated to events.</li> <li>- The user selects a range of scores (the ranges are the same for karting centres, tracks and events).</li> </ul>

Title	<b>Explore events by price</b>
Goal	The user explores events selecting one range of prices at a time.
Precondition	The user is in the area (of the public view) dedicated to events.
Postcondition	The user obtains the list of events from which he can move on.
Workflow	<ul style="list-style-type: none"> <li>- The user moves to the area dedicated to events.</li> <li>- The user selects a range of prices.</li> </ul>

Title	<b>Explore events by category</b>
Goal	The user explores events selecting one category at a time.
Precondition	The user is in the area (of the public view) dedicated to events.
Postcondition	The user obtains the list of events from which he can move on.
Workflow	<ul style="list-style-type: none"> <li>- The user moves to the area dedicated to events.</li> <li>- The user selects a category.</li> </ul>

Title	<b>Explore events by popularity</b>
Goal	The user explores only the events considered popular (those that have at least $N$ participants and at least $M$ reviews)
Precondition	The user is in the area (of the public view) dedicated to events.
Postcondition	The user obtains the list of events from which he can move on.
Workflow	<ul style="list-style-type: none"> <li>- The user moves to the area dedicated to events.</li> <li>- The user chooses an event from the list of popular events already provided in the area dedicated to events.</li> </ul>

Title	<b>Explore upcoming events</b>
Goal	The user explores only the upcoming events (those whose first race still has to take place).
Precondition	The user is in the area (of the public view) dedicated to events or in the homepage (which already shows the list of upcoming events, the list of tracks that will be involved and the list of karting centers that will be involved).
Postcondition	The user obtains the list of events from which he can move on.
Workflow	<ul style="list-style-type: none"> <li>- A: the user chooses an event from the list of upcoming events already provided in the homepage.</li> <li>- B.1: the user moves to the area dedicated to events.</li> <li>- B.2: the user chooses an event from the list of upcoming events already provided in the area dedicated to events.</li> </ul>

Title	<b>Explore controversial events</b>
Goal	The user explores only the controversial events (those that have at least $N$ reviews under 25% of the maximum score and at least $M$ reviews over 75% of the maximum score).
Precondition	The user is in the area (of the public view) dedicated to events.
Postcondition	The user obtains the list of events from which he can move on.
Workflow	<ul style="list-style-type: none"> <li>- The user moves to the area dedicated to events.</li> <li>- The user chooses an event from the list of controversial events already provided in the area dedicated to events.</li> </ul>

Title	<b>Read details on event</b>
Goal	The user chooses one event to focus on and reads its details.
Precondition	The user chose an event from a list of events (obtained from any of the previous use cases).
Postcondition	The user obtains the details on the event and can move on to other related informations (e.g. races, pilots)
Workflow	<ul style="list-style-type: none"> <li>- The user chooses one event from a list.</li> </ul>

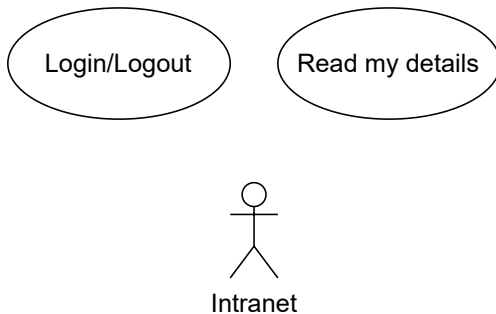
Title	<b>Explore karting centers by event</b>
Goal	The user chooses one event to focus on and explores the karting centers that hosted at least one race of the event.
Precondition	The user chose an event from a list of events (obtained from any of the previous use cases).
Postcondition	The user obtains the list of karting centers in the area dedicated to karting centers.
Workflow	- The user moves from the area dedicated to the details of the event to the area dedicated to karting centers through a click.

Title	<b>Explore tracks by event</b>
Goal	The user chooses one event to focus on and explores the tracks that hosted at least one race of the event.
Precondition	The user chose an event from a list of events (obtained from any of the previous use cases).
Postcondition	The user obtains the list of tracks in the area dedicated to tracks.
Workflow	- The user moves from the area dedicated to the details of the event to the area dedicated to tracks through a click.

Title	<b>Explore pilots from event</b>
Goal	The user chooses one event to focus on and explores the pilots that participated to the event.
Precondition	The user chose an event from a list of events (obtained from any of the previous use cases).
Postcondition	The user obtains a list of pilots in the area dedicated to pilots.
Workflow	- The user moves from the area dedicated to the details of the event to the area dedicated to pilots through a click.

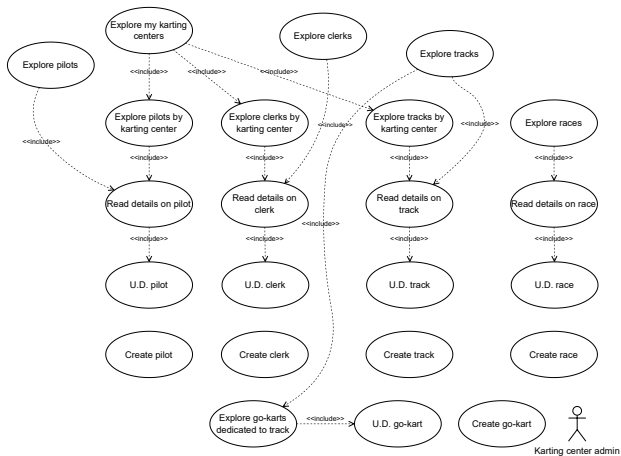
Title	<b>Explore races from event</b>
Goal	The user chooses one event to focus on and explores the races that the event organized.
Precondition	The user chose an event from a list of events (obtained from any of the previous use cases).
Postcondition	The user obtains a list of races in the area dedicated to races.
Workflow	- The user moves from the area dedicated to the details of the event to the area dedicated to races through a click.

Title	<b>Read reviews on event</b>
Goal	The user chooses one event to focus on and scrolls the reviews it received (from pilots that participated to the event).
Precondition	The user chose an event from a list of events (obtained from any of the previous use cases).
Postcondition	The user obtains the reviews on the event in the area dedicated to reviews.
Workflow	- The user moves from the area dedicated to the details of the event to the area dedicated to reviews through a click.





# Karting center administrator



# Karting center administrator

Title	<b>Explore my karting centers</b>
Goal	The user explores the karting centers he manages.
Precondition	The user logged in and manages at least one karting center.
Postcondition	The user obtains the list of karting centers he manages.
Workflow	<ul style="list-style-type: none"><li>- A: the user already has a list of karting centers he manages in the homepage.</li><li>- B: the user moves to the area dedicated to karting centers and the list is already provided.</li></ul>

Title	<b>Explore pilots by karting center</b>
Goal	The user explores the pilots that participated in at least one race on a track of a karting center the user manages.
Precondition	The user logged in, manages at least one karting center and at least one pilot had a race on a track of the karting center.
Postcondition	The user obtains the list of pilots in the area dedicated to pilots.
Workflow	<ul style="list-style-type: none"><li>- The user chooses the option to explore pilots of a karting center from the list (provided in the homepage) of karting centers he manages.</li></ul>

Title	<b>Explore pilots</b>
Goal	The user explores all the pilots that were registered in any karting center by any karting center administrator.
Precondition	The user logged in.
Postcondition	The user obtains the list of pilots in the area dedicated to pilots.
Workflow	<ul style="list-style-type: none"><li>- The user moves to the area dedicated to pilots (the list is already provided).</li></ul>

# Karting center administrator

Title	<b>Read details on pilot</b>
Goal	The user chooses one pilot to focus on and reads its details.
Precondition	The user chose a pilot from a list of pilots (obtained from the homepage, from the area dedicated to pilots or from the area dedicated to races).
Postcondition	The user obtains the details on the pilot (in the area dedicated to pilots).
Workflow	<ul style="list-style-type: none"><li>- The user chooses one pilot from a list (from the homepage, the area dedicated to pilots or the area dedicated to races).</li></ul>

Title	<b>U.D. pilots</b>
Goal	The user updates or deletes a pilot.
Precondition	The user logged in.
Postcondition	The chosen pilot is updated or deleted.
Workflow	<ul style="list-style-type: none"><li>- The user moves to the area dedicated to pilots.</li><li>- The user chooses the option to update or delete a pilot from the list of all pilots (provided in the area dedicated to pilots).</li></ul>

Title	<b>Create pilots</b>
Goal	The user creates a new pilot.
Precondition	The user logged in.
Postcondition	The pilot is created.
Workflow	<ul style="list-style-type: none"><li>- The user moves to the area dedicated to pilots.</li><li>- The user chooses the option to create a new pilot.</li></ul>

# Karting center administrator

Title	<b>Explore clerks by karting center</b>
Goal	The user explores the clerks that work in a karting center the user manages.
Precondition	The user logged in, manages at least one karting center and at least one clerk works in the karting center.
Postcondition	The user obtains the list of clerks in the area dedicated to clerks.
Workflow	- The user chooses the option to explore clerks of a karting center (among the list of karting centers displayed in the homepage) he manages.

Title	<b>Explore tracks by karting center</b>
Goal, Precondition, Postcondition, Workflow	Similar to the use case <b>Explore clerks by karting center</b> . The user explores the tracks that are part of a karting center the user manages. It is of course possible for a karting center administrator to explore all the tracks of all the karting centers the same way is for a visitor, but the site view dedicated to the karting center administrator focuses on showing him custom informations. This is not true for the access of the karting center administrator to clerks, he cannot even read informations about clerks from other karting centers, not in his dedicated site view, neither in the visitor's site view.

# Karting center administrator

Title	<b>Explore clerks</b>
Goal	The user explores all the clerks that were registered in any karting center the user manages.
Precondition	The user logged in, manages at least one karting center and at least one clerk works in the karting center.
Postcondition	The user obtains the list of clerks in the area dedicated to clerks.
Workflow	- The user moves to the area dedicated to clerks (the list is already provided). Note: a karting center admin can see all the pilots (also from other karting centers) in the area dedicated to pilots but can only see the clerks of the karting centers he manages in the area dedicated to clerks.

Title	<b>Explore tracks</b>
Goal, Precondition, Postcondition, Workflow	Similar to the use case <b>Explore clerks</b> .

Title	<b>Explore races</b>
Goal, Precondition, Postcondition, Workflow	Similar to the use case <b>Explore clerks</b> . The user explores all the races that were hosted on any of the tracks in any of the karting centers he manages.

# Karting center administrator

Title	<b>Read details on clerk</b>
Goal	The user chooses one clerk to focus on and reads its details.
Precondition	The user chose a clerk from a list of clerks (obtained from the homepage, from the area dedicated to clerks.)
Postcondition	The user obtains the details on the clerk (in the area dedicated to clerks).
Workflow	- The user chooses one clerk from a list (from the homepage or the area dedicated to clerks).

Title	<b>Read details on track</b>
Goal, Precondition, Postcondition, Workflow	Similar to the use case <b>Read details on clerk</b> .

Title	<b>Read details on race</b>
Goal, Precondition, Postcondition, Workflow	Similar to the use case <b>Read details on clerk</b> .

# Karting center administrator

Title	<b>U.D. clerks</b>
Goal	The user updates or deletes a clerk.
Precondition	The user logged in.
Postcondition	The chosen clerk is updated or deleted.
Workflow	<ul style="list-style-type: none"><li>- The user moves to the area dedicated to clerks.</li><li>- The user chooses the option to update or delete a clerk from the list of all clerks (provided in the area dedicated to clerks).</li></ul> The user can only update or delete clerks that work for a karting center he manages.

Title	<b>U.D. tracks</b>
Goal, Precondition, Postcondition, Workflow	Similar to the use case <b>U.D. clerks</b> . The user can update or delete only tracks of karting centers he manages.

Title	<b>U.D. races</b>
Goal, Precondition, Postcondition, Workflow	Similar to the use case <b>U.D. races</b> . The user can update or delete races that took place or are going to take place on a track of a karting center he manages; when he does, the list of reservations on the same track associated to the race being updated/deleted is shown.

# Karting center administrator

Title	<b>Create clerks</b>
Goal	The user creates a new clerk.
Precondition	The user logged in.
Postcondition	The clerk is created.
Workflow	<ul style="list-style-type: none"><li>- The user moves to the area dedicated to clerks.</li><li>- The user chooses the option to create a new clerk tht will be visible only to him.</li></ul>

Title	<b>Create tracks</b>
Goal, Precondition, Postcondition, Workflow	Similar to the use case <b>Create clerks</b> . The track created will be visible to everybody.

Title	<b>Create races</b>
Goal, Precondition, Postcondition, Workflow	Similar to the use case <b>Create clerks</b> . When the race is created, an associated reservation (weak entity) is created as well and all the clerks working for the karting center that hosts the new race will be able to confirm it. The reservation stores the information of the pilot or the organizer that created the race, in this case a fictitious organizer that is created apriori is used.



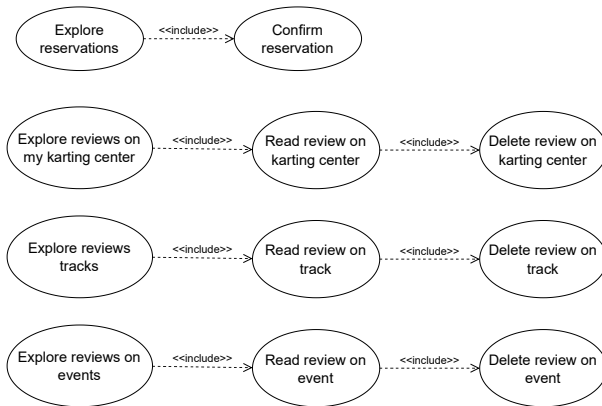
# Karting center administrator

Title	<b>Explore go-karts dedicated to track (TODO)</b>
Goal	The user explores the go-karts that are dedicated to a track.
Precondition	The user logged in, manages at least one karting center that has at least one track that has at least one go-kart dedicated to it.
Postcondition	The user obtains the list of go-karts in the area dedicated to go-karts.
Workflow	<ul style="list-style-type: none"><li>- A: the user chooses a track from the list of tracks (provided in the homepage) of the karting centers he manages.</li><li>- B: the user moves to the area dedicated to tracks and chooses a track from the list of tracks (provided in the area dedicated to tracks) of the karting centers he manages.</li><li>- The user chooses the option to explore go-karts dedicated to the track.</li></ul>

Title	<b>U.D. go-karts (TODO)</b>
Goal	The user updates or deletes a go-kart.
Precondition	The user logged in and manages at least one karting center that has at least one track that has at least one go-kart dedicated to it.
Postcondition	The chosen go-kart is updated or deleted.
Workflow	<ul style="list-style-type: none"><li>- A: the user chooses a track from the list of tracks (provided in the homepage) of the karting centers he manages.</li><li>- B: the user moves to the area dedicated to tracks and chooses a track from the list of tracks (provided in the area dedicated to tracks) of the karting centers he manages.</li><li>- The user chooses the option to update or delete a go-kart from the list of go-karts provided in the same page with the details on the track.</li></ul>

# Karting center administrator

Title	<b>Create go-karts (TODO)</b>
Goal	The user creates a new go-kart.
Precondition	The user logged in and manages at least one karting center that has at least one track.
Postcondition	The go-kart is created.
Workflow	<ul style="list-style-type: none"><li>- A: the user chooses a track from the list of tracks (provided in the homepage) of the karting centers he manages.</li><li>- B: the user moves to the area dedicated to tracks and chooses a track from the list of tracks (provided in the area dedicated to tracks) of the karting centers he manages.</li><li>- The user chooses the option to create a new go-kart dedicated to the track from the same page with the details on the track.</li></ul>



Clerk

Title	<b>Explore reservations</b>
Goal	The user explores the reservations asked by pilots on any track of the karting center the user works for (a clerk can work on one karting center at a time.)
Precondition	The user logged in and works for a karting center that received at least a request for reservation on a track.
Postcondition	The user obtains the list of reservations in the area dedicated to reservations.
Workflow	- The user moves to the area dedicated to reservations (a list of the reservations grouped by track is provided).

Title	<b>Confirm reservation</b>
Goal	The user confirms a reservation.
Precondition	The user logged in and works for a karting center that received at least a request for reservation on a track.
Postcondition	The reservation is confirmed (it now has both a pilot/organizer and a clerk associated to it).
Workflow	- The user moves to the area dedicated to reservations. - The user chooses the option to confirm a reservation from the list of reservations.

Title	<b>Explore reviews on my karting center</b>
Goal	The user explores the reviews that were written on the karting center the user works for.
Precondition	The user logged in and works for a karting center that received at least one review.
Postcondition	The user obtains the list of reviews on the karting centers.
Workflow	- The user already has a list of reviews on the karting center he works for in the homepage.

Title	<b>Explore reviews on tracks</b>
Goal	The user explores the reviews that were written on tracks of the karting center the user works for.
Precondition	The user logged in and works for a karting center that received at least one review on a specific track.
Postcondition	The user obtains the list of reviews on the tracks.
Workflow	- The user already has a list of reviews on the karting center he works for in the homepage.

Title	<b>Explore reviews on events</b>
Goal	The user explores the reviews that were written on events that hosted at least one race on a track of the karting center the user works for.
Precondition	The user logged in and works for a karting center that hosted at least one race of an event that received at least one review.
Postcondition	The user obtains the list of reviews on the events.
Workflow	- The user already has a list of reviews on the karting center he works for in the homepage.

Title	<b>Read review on karting center</b>
Goal	The user chooses one review to focus on and reads its details.
Precondition	The user logged in and chose a review from the list of reviews on the karting center.
Postcondition	The user obtains reads the review and can decide to delete it.
Workflow	- The user chooses one review from the list of reviews on the karting center (from the homepage).

Title	<b>Read review on track</b>
Goal, Precondition, Postcondition, Workflow	Similar to the use case <b>Read review on karting center</b> .

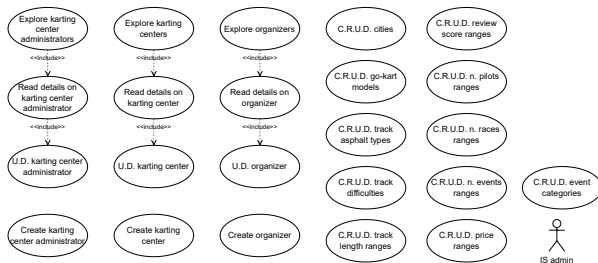
Title	<b>Read review on event</b>
Goal, Precondition, Postcondition, Workflow	Similar to the use case <b>Read review on karting center</b> .

Title	<b>Delete review on karting center</b>
Goal	The user deletes a review on the karting center.
Precondition	The user logged in and chose a review from the list of reviews on the karting center.
Postcondition	The user deletes the review.
Workflow	<ul style="list-style-type: none"> <li>- The user chooses one review from the list of reviews on the karting center (from the homepage).</li> <li>- The user chooses the option to delete the review.</li> </ul>

Title	<b>Delete review on track</b>
Goal, Precondition, Postcondition, Workflow	Similar to the use case <b>Delete review on karting center</b> .

Title	<b>Delete review on event</b>
Goal, Precondition, Postcondition, Workflow	Similar to the use case <b>Delete review on karting center</b> .

# Information system administrator





Title	<b>Explore karting center administrators</b>
Goal	The user explores the karting center administrators
Precondition	The user logged in and has already created at least a karting center administrator.
Postcondition	The user obtains the list of karting center administrators.
Workflow	- The user moves to the area dedicated to karting center administrators.

Title	<b>Explore karting centers</b>
Goal, Precondition, Postcondition, Workflow	Similar to the use case <b>Explore karting center administrators</b> .

Title	<b>Explore organizers</b>
Goal, Precondition, Postcondition, Workflow	Similar to the use case <b>Explore karting center administrators</b> .

Title	<b>Read details on karting center administrator</b>
Goal	The user chooses one karting center administrator to focus on and reads its details.
Precondition	The user logged in and has already created at least a karting center administrator.
Postcondition	The user obtains the details on the karting center administrator.
Workflow	<ul style="list-style-type: none"><li>- The user moves to the area dedicated to karting center administrators.</li><li>- The user chooses one karting center administrator from the list of karting center administrators.</li></ul>

Title	<b>Read details on karting center</b>
Goal, Precondition, Postcondition, Workflow	Similar to the use case <b>Read details on karting center administrator</b> .

Title	<b>Read details on organizer</b>
Goal, Precondition, Postcondition, Workflow	Similar to the use case <b>Read details on karting center administrator</b> .

# Information system administrator

Title	<b>U.D. karting center administrator</b>
Goal	The user updates or deletes a karting center administrator.
Precondition	The user logged in and has already created at least a karting center administrator.
Postcondition	The chosen karting center administrator is updated or deleted.
Workflow	<ul style="list-style-type: none"><li>- The user moves to the area dedicated to karting center administrators.</li><li>- The user chooses one karting center administrator from the list of karting center administrators.</li><li>- The user chooses the option to update or delete the karting center administrator.</li></ul>

Title	<b>U.D. karting center</b>
Goal, Precondition, Postcondition, Workflow	Similar to the use case <b>U.D. karting center administrator</b> .

Title	<b>U.D. organizer</b>
Goal, Precondition, Postcondition, Workflow	Similar to the use case <b>U.D. karting center administrator</b> .

# Information system administrator

Title	<b>Create karting center administrator</b>
Goal	The user creates a new karting center administrator.
Precondition	The user logged in.
Postcondition	The karting center administrator is created.
Workflow	<ul style="list-style-type: none"><li>- The user moves to the area dedicated to karting center administrators.</li><li>- The user chooses the option to create a new karting center administrator.</li></ul>

Title	<b>Create karting center</b>
Goal, Precondition, Postcondition, Workflow	Similar to the use case <b>Create karting center administrator</b> .

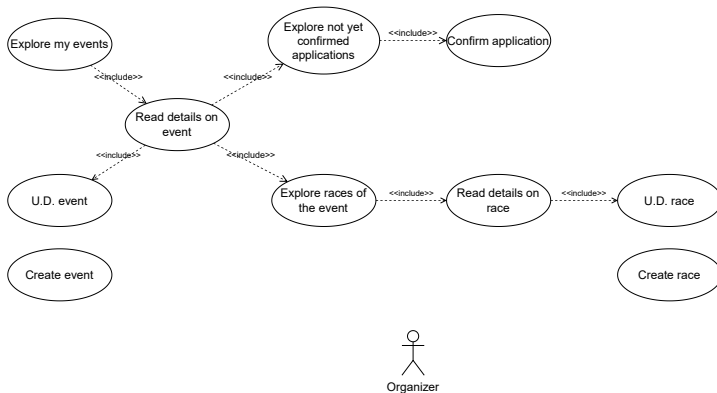
Title	<b>Create organizer</b>
Goal, Precondition, Postcondition, Workflow	Similar to the use case <b>Create karting center administrator</b> .

# Information system administrator

The information system administrator is responsible for the management of all those entities useful to the visitors to navigate the site. He has the possibility to create, update and delete the following entities:

- City
- Go-kart model
- Track asphalt type
- Track difficulty
- Track length range
- Review score range
- Number of pilots range
- Number of races range
- Number of events range
- Price range
- Event category

# Organizer



Title	<b>Explore my events</b>
Goal	The user explores the events he created.
Precondition	The user logged in and created at least one event.
Postcondition	The user obtains the list of events he created.
Workflow	<ul style="list-style-type: none"><li>- A: the user already has a list of events he created and the applications received for each event in the homepage.</li><li>- B: the user moves to the area dedicated to events and the list is already provided.</li></ul>

Title	<b>Read details on my event</b>
Goal	The user chooses one event to focus on and reads its details.
Precondition	The user logged in.
Postcondition	The user obtains the details on the event and can move on to other related informations (e.g. applications).
Workflow	<ul style="list-style-type: none"><li>- A: the user chooses one event from the list of events he created in the homepage.</li><li>- B.1: the user moves to the area dedicated to events.</li><li>- B.2: the user chooses one event from the list of events he created in the area dedicated to events.</li></ul>

Title	<b>U.D. events</b>
Goal	The user updates or deletes an event he created.
Precondition	The user logged in and he created at least one event.
Postcondition	The event is updated or deleted, the modifications might affect the races created for the track and the participations of the pilots to the races of the event but the applications made by pilots are not affected.
Workflow	<ul style="list-style-type: none"><li>- A: the user chooses one event from the list of events he created in the homepage.</li><li>- B.1: the user moves to the area dedicated to events.</li><li>- B.2: the user chooses one event from the list of events he created in the area dedicated to events.</li><li>- The user chooses the option to update or delete the event.</li></ul>

Title	<b>Create event</b>
Goal	The user creates a new event.
Precondition	The user logged in and created at least one race.
Postcondition	The event is created and pilots can apply to it.
Workflow	<ul style="list-style-type: none"><li>- The user moves to the area dedicated to events.</li><li>- The user chooses the option to create a new event (he will need to choose among races he created to fill the event).</li></ul>



# Organizer

Title	<b>Explore not yet confirmed applications</b>
Goal	The user explores the applications received for his events that he did not confirm yet.
Precondition	The user logged in, created at least one event and at least one pilot applied to it.
Postcondition	The user obtains the list of applications that he did not confirm yet.
Workflow	<ul style="list-style-type: none"><li>- A: the user chooses one event from the list of events he created in the homepage.</li><li>- B.1: the user moves to the area dedicated to events.</li><li>- B.2: the user chooses one event from the list of events he created in the area dedicated to events.</li></ul> (- The list of applications not yet confirmed is already provided.)

Title	<b>Confirm application</b>
Goal	The user confirms an application received for one of his events.
Precondition	The user logged in, created at least one event and at least one pilot applied to it.
Postcondition	The application is confirmed and the pilot is automatically inserted as a participant to all of the races of the event (this might change, e.g. in case the organizer decides to organize races in a tournament fashion, but the application will not be affected).
Workflow	<ul style="list-style-type: none"><li>- A: the user chooses one event from the list of events he created in the homepage.</li><li>- B.1: the user moves to the area dedicated to events.</li><li>- B.2: the user chooses one event from the list of events he created in the area dedicated to events.</li></ul> - The user chooses the option to accept an application from the list of applications not yet confirmed.

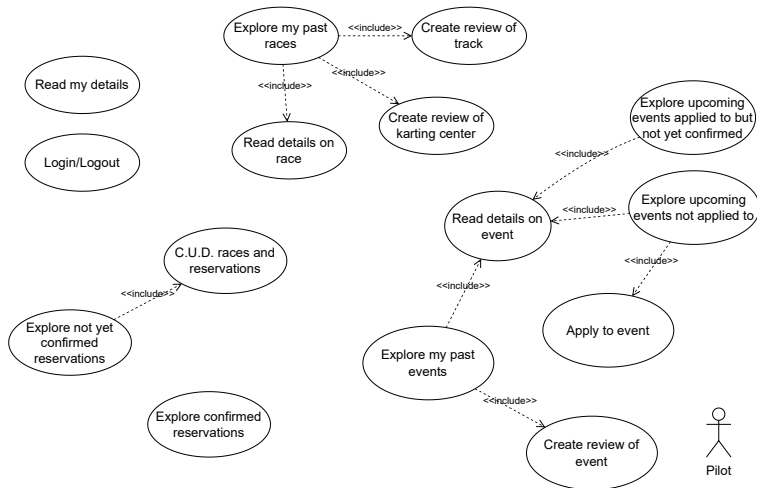
Title	<b>Explore races of the event</b>
Precondition	The user logged in, created at least one event and the event has at least one race.
Postcondition	The user obtains the list of races of a specific event.
Workflow	<ul style="list-style-type: none"><li>- A: the user chooses one event from the list of events he created in the homepage.</li><li>- B.1: the user moves to the area dedicated to events.</li><li>- B.2: the user chooses one event from the list of events he created in the area dedicated to events.</li><li>(- The list of races of the chosen event is already provided.)</li></ul>

Title	<b>Read details on race</b>
Precondition	The user logged in, created at least one event and the event has at least one race.
Postcondition	The user obtains the details on the race and can move on (e.g. updating or deleting it.)
Workflow	<ul style="list-style-type: none"><li>- A: the user chooses one event from the list of events he created in the homepage.</li><li>- B.1: the user moves to the area dedicated to events.</li><li>- B.2: the user chooses one event from the list of events he created in the area dedicated to events.</li><li>- The user chooses one race from the list of races of the chosen event.</li></ul>

# Organizer

Title	<b>U.D. race</b>
Precondition	The user logged in, created at least one event and the event has at least one race.
Postcondition	The race gets updated or deleted, this affects the relations with the pilots ( <i>participation</i> ) but not the application of the pilots to the event.
Workflow	<ul style="list-style-type: none"><li>- A: the user chooses one event from the list of events he created in the homepage.</li><li>- B.1: the user moves to the area dedicated to events.</li><li>- B.2: the user chooses one event from the list of events he created in the area dedicated to events.</li><li>- The user chooses one race from the list of races of the chosen event.</li><li>- The user chooses the option to update or delete the race.</li></ul>

Title	<b>Create race</b>
Precondition	The user logged in.
Postcondition	A new race is available to the user to be added to an event.
Workflow	<ul style="list-style-type: none"><li>- The user moves to the area dedicated to events.</li><li>- The user chooses the option to create a new race.</li></ul>



Title	<b>Read my details</b>
Goal	The user reads its own personal informations, already available in the homepage.
Precondition	The user logged in.
Postcondition	The user obtains its personal informations.
Workflow	- The user logs in and reads the informations already present in the homepage.

Title	<b>Explore not yet confirmed reservations</b>
Goal	The user explores the reservations he made that are not yet confirmed by any clerk
Precondition	The user logged in.
Postcondition	The user obtains the list of reservations that are not yet confirmed by any clerk.
Workflow	- The user moves to the area dedicated to reservations and the list is already provided.

Title	<b>C.U.D. races and reservations</b>
Goal	The user asks for a reservation to have a race on a track of a karting center.
Precondition	The user logged in.
Postcondition	A race and its relative reservation (a weak entity of the race) are created, updated or deleted.
Workflow	<ul style="list-style-type: none"> <li>- The user moves to the area dedicated to reservations.</li> <li>- A: the user selects a reservation from those not yet confirmed and updates it or deletes it.</li> <li>- B: the user creates a new reservation without the need to select one from those not yet confirmed.</li> </ul> <p>Note: the existence of the reservation is hidden to the user when he creates/updates/deletes the race, the reservation just takes some of the attributes of the race (Date, Start, End) and is shared with the clerks of the karting center, who can confirm it or not. The user can only see the reservations that are confirmed or not, he does not edit them directly but only through the actions on the race.</p>

Title	<b>Explore confirmed reservations</b>
Goal	The user explores the reservations he made that are confirmed by a clerk
Precondition	The user logged in.
Postcondition	The user obtains the list of reservations that are confirmed by a clerk.
Workflow	- The user moves to the area dedicated to reservations and the list is already provided.

Title	<b>Explore my past races</b>
Goal	The user explores the races he had in the past (not the races he booked through the previous use case).
Precondition	The user logged in.
Postcondition	The user obtains the list of past races.
Workflow	- The user moves to the area dedicated to races and the list is already provided.

Title	<b>Read details on race</b>
Goal	The user chooses one race to focus on and reads its details.
Precondition	The user logged in.
Postcondition	The user obtains the details on the race and related informations such as the best lap-time of that race (it could be from the user himself or another pilot).
Workflow	- The user moves to the area dedicated to races. - The user chooses one race from the list of past races.

Title	<b>Create review of karting center</b>
Goal	The user creates a review of a karting center.
Precondition	The user logged in and had at least one race that will allow him to write reviews for the track and the karting center that hosted that race.
Postcondition	The review is stored and a clerk of the karting center will be able to read it and remove it if it is considered inappropriate.
Workflow	<ul style="list-style-type: none"> <li>- The user moves to the area dedicated to reviews.</li> <li>- From the list of past races, the user selects the option to write a review of the karting center that hosted the chosen race from the list.</li> <li>- The user chooses a score, writes the review and submits it.</li> </ul>

Title	<b>Create review of track</b>
Goal, precondition, postcondition, workflow	Equivalent to the previous use case, but the review is of a track.

Title	<b>Explore upcoming events applied to but not confirmed yet</b>
Goal	The user explores the events that he applied to and that have not been confirmed by an organizer yet.
Precondition	The user logged in.
Postcondition	The user obtains the list of events that he applied to and that have not been confirmed yet.
Workflow	<ul style="list-style-type: none"> <li>- The user moves to the area dedicated to events and the list is already provided.</li> </ul>



Title	<b>Explore upcoming events not applied to</b>
Goal	The user explores the upcoming events that he did not apply to.
Precondition	The user logged in.
Postcondition	The user obtains the list of upcoming events that he did not apply to.
Workflow	<ul style="list-style-type: none"> <li>- The user moves to the area dedicated to events and the list is already provided.</li> </ul>

Title	<b>Explore my past events</b>
Goal	The user explores the events that he attended in the past.
Precondition	The user logged in and attended at least one event in the past.
Postcondition	The user obtains the list of events that he attended in the past.
Workflow	<ul style="list-style-type: none"> <li>- The user moves to the area dedicated to events.</li> <li>- The user selects the option to explore the events that he attended in the past.</li> </ul>

Title	<b>Apply to an event</b>
Goal	The user applies to an event.
Precondition	The user logged in and he has not already applied to the event.
Postcondition	The user applies to the event and the organizer will be able to see and confirm the application.
Workflow	<ul style="list-style-type: none"> <li>- The user moves to the area dedicated to events.</li> <li>- The user selects one event from the list of upcoming events that he did not apply to.</li> <li>- The user applies to the event.</li> </ul>

Title	<b>Read details on event</b>
Goal	The user chooses one event to focus on and reads its details.
Precondition	The user logged in.
Postcondition	The user obtains the details on the event.
Workflow	<ul style="list-style-type: none"> <li>- The user moves to the area dedicated to events.</li> <li>- A: the user chooses one event from the list of upcoming events (both applied to and not applied to).</li> <li>- B.1: the user chooses the option to explore the events that he attended in the past.</li> <li>- B.2: the user chooses one event from the list of past events.</li> </ul>

Title	<b>Create review of event</b>
Goal	The user creates a review of an event he has attended in the past.
Precondition	The user logged in and attended at least one event in the past.
Postcondition	The review is stored and the organizer of the event and the clerks of all the karting centers that hosted at least one race of the event will be able to read it, clerks will be able to remove it if it is considered inappropriate.
Workflow	<ul style="list-style-type: none"> <li>- The user moves to the area dedicated to events.</li> <li>- The user chooses the option to explore the events that he attended in the past.</li> <li>- The user selects the option to write a review from one of the events in the list.</li> <li>- The user chooses a score, writes the review and submits it.</li> </ul>



Visitor

Name	<b>KartingCenter</b>
Synonym	Go-karting center
Description	The karting center is one of the three core entities of WeRace, it is a place where newcomers can register and gain experience in go-kart racing. Karting centers have usually one track and sometimes more, they host events and get reviewed by pilots.
Example of instance	Name: Mantova Karting Center City: Mantova nPilots: 5937 nRaces: 12485 nEvents:74 avgReviewScore: 3.9
Properties	Name: the name of the karting center City: the city where the karting center is located nPilots: the number of pilots that have raced in the karting center nRaces: the number of races that took place in the karting center nEvents: the number of events that had at least one race hosted by the karting center avgReviewScore: the average score of the reviews of the karting center
Components	KartingCenterReview

Relations	<p>KartingCenter.City (N:1): the city where the karting center is located</p> <p>KartingCenter.KartingCenterAdmin (N:1): the karting center administrator of the karting center</p> <p>KartingCenter.Clerk (1:N): the clerks of the karting center</p> <p>KartingCenter.KartingCenterReview (1:N): the reviews of the karting center</p> <p>KartingCenter.Track (1:N): the tracks of the karting center</p> <p><i>KartingCenter.NPilotsRange</i> (N:1) the range within the number of pilots that have raced in the karting center falls</p> <p><i>KartingCenter.NRacesRange</i> (N:1) the range within the number of races that took place in the karting center falls</p> <p><i>KartingCenter.NEventsRange</i> (N:1) the range within the number of events that took place in the karting center falls</p> <p><i>KartingCenter.ReviewScoreRange</i> (N:1) the range within the average score of the reviews of the karting center falls</p> <p><i>KartingCenter.Event</i> (N:N) the events the karting center hosted</p>
Superconcepts	None
Subconcepts	None

Name	<b>City</b>
Synonym	None
Description	A city can be the location of more karting centers (thus tracks) and events.
Example of instance	Name: Mantova
Properties	Name: the name of the city
Components	None
Relations	City_KartingCenter (1:N): the karting centers located in the city City_Track (1:N): the tracks (inside a karting center) located in the city City_Event (N:N): the events that had at least one race on a track of a karting center located in the city
Superconcepts	None
Subconcepts	None

Name	Track
Synonym	Circuit
Description	A track (the second core entity) is the place where races take place, it hosts races that are parts of events as well and receives reviews from pilots. A track can have different asphalt types, such as asphalt, concrete, epoxy resin, tarmac, etc. Tracks can be considered easier or harder based on the number of turns or the length, and they can adopt different go-kart models.
Example of instance	<p>Name: T1</p> <p>Length: 700m</p> <p>City: Mantova</p> <p>AsphaltType: resin</p> <p>nRentalGoKarts: 23</p> <p>Difficulty: Intermediate</p> <p>nPilots: 3873</p> <p>nRaces: 7437</p> <p>nEvents: 43</p> <p>avgReviewScore: 4.2</p>
Properties	<p>Name: the name of the track</p> <p>Length: the length of the track</p> <p>City: the city where the karting center the track belongs to is located</p> <p>AsphaltType: the type of asphalt of the track</p> <p>nRentalGoKarts: the number of rental go-karts available in the track</p> <p>Difficulty: the difficulty of the track</p> <p>nPilots: the number of pilots that have raced on the track</p> <p>nRaces: the number of races that took place on the track</p> <p>nEvents: the number of events that had at least one race on the track</p> <p>avgReviewScore: the average score of the reviews of the track</p>

Components	Timetable, Leaderboard, TrackReview, Race
Relations	<p>Track.KartingCenter (N:1): the karting center the track belongs to</p> <p>Track.TrackReview (1:N): the reviews of the track</p> <p>Track.Timetable (1:1): the timetable of the track</p> <p>Track.Leaderboard (1:N): the leaderboards of the track</p> <p>Track.Race (1:N): the races that took place on the track</p> <p>Track.GoKart (1:N): the go-karts dedicated to the track</p> <p>Track.GoKartModel (N:N): the go-kart models allowed on the track</p> <p>Track.TrackAshpalt (N:1): the asphalt of the track</p> <p>Track.TrackDifficulty (N:1): the difficulty of the track</p> <p>Track.Pilot (N:N): the pilots that have the track as one of their favourite</p> <p>Track.City (N:1): the city where the karting center the track belongs to is located</p> <p>Track.TrackLengthRange (N:1): the range within the length of the track falls</p> <p>Track.NPilotsRange (N:1): the range within the number of pilots that have raced on the track falls</p> <p>Track.NRacesRange (N:1): the range within the number of races that took place on the track falls</p> <p>Track.NEventsRange (N:1): the range within the number of events that took place on the track falls</p> <p>Track.ReviewScoreRange (N:1): the range within the average score of the reviews of the track falls</p>
Superconcepts	None
Subconcepts	PopularTrack



Name	<b>Go-kart</b>
Synonym	Kart
Description	Go-karts are the vehicles used during races, they are dedicated to a specific track and different models can be accepted on the same track.
Example of instance	Name: T1.1 GoKartModel: Sodi RX7
Properties	Name: the name of the go-kart <i>GoKartModel</i> : the model of the go-kart
Components	None
Relations	GoKart_Track (N:1): the track the go-kart is dedicated to GoKart.GoKartModel (N:1): the model of the go-kart GoKart.LapTime (1:N): the lap-times made using this go-kart
Superconcepts	None
Subconcepts	None

Name	<b>Timetable</b>
Synonym	None
Description	The timetable of a track can be considered as a calendar that keeps track of all the reservations made, for simplicity in WeRace the timetable is a weak entity of the track that only has relations with reservations.
Example of instance	<i>TrackName</i> : T1
Properties	<i>TrackName</i> : the name of the track
Components	None
Relations	Timetable_Track (1:1): the track the timetable belongs to Timetable_Reservation (1:N): the reservations of the timetable
Superconcepts	None
Subconcepts	None

Name	<b>Leaderboard</b>
Synonym	Ranking
Description	A leaderboard of a track is a list of lap-times made by pilots during races, filtered and sorted by different criteria, e.g. a leaderboard can show the best lap-times of the week made by pilots that are in the range of 18-25 years old, or the best lap-times of the month made by pilots that have a weight between 70 and 80 kg, or the best lap-times ever made by pilots using a Sodi RX7. In the future WeRace might implement leaderboards that filter by different genders (taking care of being as inclusive as possible).
Example of instance	Title: Best of the week <i>TrackName</i> : T1
Properties	Title: the title of the leaderboard <i>TrackName</i> : the name of the track
Components	None
Relations	Leaderboard.Track (N:1): the track each leaderboard belongs to Leaderboard.LapTime (N:N): the lap times the leaderboard focuses on
Superconcepts	None
Subconcepts	None

Name	<b>Race</b>
Synonym	None
Description	A race is a competition involving many (but it could be just one) pilots that, everytime they complete a lap, generate a lap-time. A race can be created on the spot by the karting center administrator or a reservation can be made by a pilot or an organizer, such reservation is then confirmed by a clerk. The difficulty in handling a race is that it gets first created by a pilot or an organizer, together with its reservation, and during the race different relations are automatically created with the help of a telemetry system that records the lap-times of the pilots.
Example of instance	ID: 2036 Date: 2024-02-15 Start: 15:00 End: 15:09 ForEvent: false <i>GoKartingCenterName</i> : Mantova Karting Center <i>TrackName</i> : T1 <i>nParticipants</i> : 8 <i>fastestLapTime</i> : 00:00:48.595
Properties	ID Date Start End ForEvent: whether the race was created by an organizer for an event or not <i>GoKartingCenterName</i> <i>TrackName</i> : the name of the track that hosts the race <i>nParticipants</i> <i>fastestLapTime</i>
Components	Reservation, Lap-time

Relations	Race_Track (N:1): the track the race has been raced on Race_Reservation (1:1): the reservation that has been made for the race Race_Pilot (N:N): the pilots that participated in the race Race_LapTime (1:N): every lap-time of every pilot that participated in the race Race_Event (N:1): the event the race is part of <i>Race_Pilot</i> (1:N): the pilots who have this race as their last race <i>Race_Laptime</i> (1:1): the best lap-time of the race
Superconcepts	None
Subconcepts	None

Name	<b>Reservation</b>
Synonym	Booking
Description	A reservation is a weak entity of a race, it is created automatically when a pilot or an organizer makes a reservation and it is later confirmed by a clerk. When the karting center administrator creates a race on the spot, as by February 2024, the associated reservation is created automatically and connected to a fictitious organizer created apriori, then confirmed automatically by a fictitious clerk created apriori for every karting center. Further improvements might allow the reservation to be created without the need of such fictitious instances that only cause an overload for the simple sake of not leaving empty fields in the reservation.
Example of instance	Date: 2024-02-15 Start: 15:00 End: 15:09 <i>ReservedByPilot</i> : denisfesta <i>ReservedByOrganizer</i> : None <i>ConfirmedByClerk</i> : Jessica
Properties	Date Start End <i>ReservedByPilot</i> : the pilot who made the reservation (this property is mutually exclusive with <i>ReservedByOrganizer</i> ) <i>ReservedByOrganizer</i> : the organizer who made the reservation (this property is mutually exclusive with <i>ReservedByPilot</i> ) <i>ConfirmedByClerk</i> : the clerk who confirmed the reservation
Components	None

Relations	Reservation_Timetable (N:1): the timetable where the reservation is stored Reservation_Pilot (N:1): the pilot who made the reservation Reservation_Organizer (N:1): the organizer who made the reservation Reservation_Clerk (N:1): the clerk who confirmed the reservation Reservation_Race (1:1): the race this reservation has been made for
Superconcepts	None
Subconcepts	None

Name	<b>Lap-time</b>
Synonym	Lap
Description	A lap-time is the measurement of the time taken by a pilot to complete a lap of a track with a go-kart. Every race has a best lap-time, chances that more pilots made lap-times with the same best time are very low, but in any case the they are both stored so there is no worry about one of the two being forgotten or not getting the credit it deserves. the best lap-time chosen for the race in this case is the one that has been made first, in any leaderboard the <i>discarded</i> lap-time can be shown as the first one in the list in case the sorting policy sorts ties by the name of the pilot or its weight or its age.
Example of instance  <i>PilotUsername</i> : denisfesta	LapNumber: 7 LapTime: 00:00:48.595 GoKartModel: Sodi RX7
Properties	LapNumber: the <i>LapNumber</i> -th lap LapTime: the time measured for the <i>LapNumber</i> -th lap for a particular pilot GoKartModel: the go-kart model used by the pilot
Components	None
Relations	LapTime.Pilot (N:1): the pilot who made the lap-time LapTime.Race (N:1): the race where the lap-time has been made LapTime.Race (1:1): in case the lap-time is the best of a race LapTime.Leaderboard (N:N): the leaderboards where the lap-time is displayed
Superconcepts	None
Subconcepts	None



Name	<b>Application</b>
Synonym	Request
Description	An application is a weak entity of an event, it is created by a pilot who wants to participate to an event and approved by the organizer of the event.
Example of instance	Confirmed: true <i>EventName</i> : Mantova Karting Cup 2024 <i>RequestFromPilot</i> : denisfesta
Properties	Confirmed: whether the application has been confirmed or not (the organizer who created the event is the only one who can accept an application) <i>EventName</i> : the name of the event the application has been made for <i>RequestFromPilot</i> : the pilot who made the application
Components	None
Relations	Application.Pilot (N:1): the pilot who made the application Application.Event (N:1): the event the application has been made for
Superconcepts	None
Subconcepts	None

Name	<b>Event</b>
Synonym	Tournament
Description	An event (the third core entity) is a sequence of races organized on different tracks (but it could be the same track) of different karting centers and involves many pilots whose applications were all accepted by the organizer or who were directly inserted as participants by the organizer. Events can have different targets such as being open to everyone, to intermediate or to pro pilots, the organizer will decide whether accepting or not the applications based on the record of the pilots requesting to participate.
Example of instance	Name: Mantova Karting Cup 2024 Price: 100 <i>FirstDate</i> : 2024-02-15 <i>OrganizerName</i> : WD40 <i>EventCategory</i> : Open <i>nParticipants</i> : 64 <i>nRaces</i> : 12 <i>nReviews</i> : 23 <i>avgReviewScore</i> : 4.5
Properties	Name: the name of the event Price: the price of the event <i>FirstDate</i> : the date of the first race of the event <i>OrganizerName</i> : the username of the organizer who created the event <i>EventCategory</i> : the category of the event ( <i>open</i> , <i>intermediate</i> , <i>pro</i> )

Properties	<i>nParticipants</i> : the number of pilots who applied for the event and whose application was confirmed <i>nRaces</i> : the number of races of the event <i>nReviews</i> : the number of written reviews about the event <i>avgReviewScore</i> : the average score of the reviews about the event
Components	EventReview, Application
Relations	Event_Organizer (N:1): the organizer who created the event Event_Application (1:N): the applications received for the event Event_Race (1:N): the races of the event Event_EventCategory (N:1): the category of the event Event_EventReview (1:N): the reviews about the event Event_ReviewScoreRange (N:1): the range within the average score of the reviews about the event falls Event_Pilot (N:N): the pilots who applied for the event and whose application was confirmed Event_PriceRange (N:1): the range within the price of the event falls Event_City (N:N): the cities where the races of the event took place Event_Track (N:N): the tracks that hosted the races of the event Event_KartingCenter (N:N): the karting centers whose tracks hosted the races of the event
Superconcepts	None
Subconcepts	Controversial event, Popular event, Upcoming event

Name	<b>Review</b>
Synonym	Opinion
Description	A review is a text written by a pilot about a karting center, a track or an event, accompanied by a score from 1 to $N$ .
Example of instance	TextReview: Fantastic track, with a lot of bumps and holes. Score: 4/5
Properties	TextReview: the text of the review Score: the score of the review
Components	None
Relations	None
Superconcepts	None
Subconcepts	KartingCenterReview, TrackReview, EventReview

Name	<b>KartingCenterReview</b>
Synonym	None
Example of instance	TextReview (inherited from <b>Review</b> ): Very rude and violent staff but nice tracks! Score (inherited from <b>Review</b> ): 4/5
Properties	None
Components	None
Relations	KartingCenterReview_KartingCenter (N:1): the karting center the review is about KartingCenterReview_Pilot (N:1): the pilot who wrote the review
Superconcepts	Review
Subconcepts	None

Name	<b>TrackReview</b>
Synonym	None
Example of instance	TextReview (inherited from <b>Review</b> ): The track is very nice, but the asphalt is not in good conditions. Score (inherited from <b>Review</b> ): 3/5
Properties	None
Components	None
Relations	TrackReview_Track (N:1): the track the review is about TrackReview_Pilot (N:1): the pilot who wrote the review
Superconcepts	Review
Subconcepts	None

Name	<b>EventReview</b>
Synonym	None
Example of instance	TextReview (inherited from <b>Review</b> ): The event was a mess, delayed a couple of times and some pilots were not correctly registered. Score (inherited from <b>Review</b> ): 2/5
Properties	None
Components	None
Relations	EventReview.Event (N:1): the event the review is about EventReview.Pilot (N:1): the pilot who wrote the review
Superconcepts	Review
Subconcepts	None

Name	<b>User</b>
Synonym	None
Description	This entity represents a registered user (not to be confused with the generic user, whose informations are not stored anywhere) who can login or logout.
Example of instance	Username: denisfesta Password: 12345asdf! Email: d.festa004@studenti.unibs.it Name: Denis Surname: Festa Address: Via Trento 5, Rovato (BS)
Properties	Username: the username of the user Password: the password of the user Email: the email address of the user Name: the name of the user Surname: the surname of the user Address: the address of the user
Components	None
Relations	None
Superconcepts	None
Subconcepts	Admin, KartingCenterAdmin, Clerk, Organizer, Pilot



Name	<b>Admin</b>
Synonym	Information system administrator
Description	The information system administrator does not have any relation with other entities of the information system but is needed to create karting center administrators, organizers and all the auxiliary objects useful for the visitor to explore easily.
Example of instance	Empty (all the properties are inherited from <b>User</b> )
Properties	None
Components	None
Relations	None
Superconcepts	User
Subconcepts	None

Name	<b>KartingCenterAdmin</b>
Synonym	None
Description	The karting center administrator is in charge of one or more karting centers, he can create tracks and go-karts, create race on the spot, register newcomers on-site (or delete pilots for their misconduct), register clerks and assign them one of the karting centers he is in charge of, make modifications to the karting centers but not delete or create new karting centers.
Example of instance	Empty (all the properties are inherited from <b>User</b> )
Properties	None
Components	None
Relations	KartingCenterAdmin_KartingCenter (1:N): the karting centers the administrator is in charge of
Superconcepts	User
Subconcepts	None

Name	<b>Clerk</b>
Synonym	None
Description	The clerk is in charge of confirming reservations made by pilots or organizers and moderating the reviews written by pilots.
Example of instance	Empty (all the properties are inherited from <b>User</b> )
Properties	None
Components	None
Relations	Clerk_KartingCenter (N:1): the karting center the clerk works for Clerk_Reservation (1:N): the reservations the clerk confirmed
Superconcepts	User
Subconcepts	None

Name	<b>Organizer</b>
Synonym	None
Description	The organizer can create events by putting together different races he already created and asked for reservations, while creating races he can manually insert pilots of his choice he can also accept or refuse applications made by pilots.
Example of instance	Empty (all the properties are inherited from <b>User</b> )
Properties	None
Components	None
Relations	Organizer_Event (1:N): the events the organizer created Organizer_Reservation (1:N): the reservations the organizer requested
Superconcepts	User
Subconcepts	None

Name	<b>Pilot</b>
Synonym	None
Description	The pilot can make participate to events (if his application is accepted by the organizer or is directly inserted by the organizer), he can participate to race created by other pilots or create his own races and make reservations for them. He can also write reviews about karting centers, tracks and events. He can choose his favourite tracks to help making them popular, scroll his past races and lap-times.
Example of instance	Username (inherited from <b>User</b> ): denisfesta Password (inherited from <b>User</b> ): 12345asdf! Email (inherited from <b>User</b> ): d.festa004@studenti.unibs.it Name (inherited from <b>User</b> ): Denis Surname (inherited from <b>User</b> ): Festa Address (inherited from <b>User</b> ): Via Trento 5, Rovato (BS) Age: 25 Weight: 70
Properties	Age: the age of the pilot Weight: the weight of the pilot
Components	None

Relations	<p>Pilot_KartingCenterReview (1:N): the reviews the pilot wrote about karting centers</p> <p>Pilot_TrackReview (1:N): the reviews the pilot wrote about tracks</p> <p>Pilot_EventReview (1:N): the reviews the pilot wrote about events</p> <p>Pilot_Application (1:N): the applications the pilot made</p> <p>Pilot_Reservation (1:N): the reservations the pilot made</p> <p>Pilot_Track (N:N): the tracks the pilot has as favorite</p> <p>Pilot_Race (N:N): the races the pilot participated in</p> <p>Pilot_LapTime (1:N): the lap-times the pilot made</p> <p><i>Pilot_Race</i> (N:1): the last race the pilot participated in</p> <p><i>Pilot_Event</i> (N:N): the events the pilot was accepted to participate in</p>
Superconcepts	User
Subconcepts	None

Name	<b>ReviewScoreRange</b>
Synonym	None
Description	A filtering of the three types of reviews (karting center, track, event) based on the average score of the reviews.
Example of instance	LowerBoundIncluded: 1 UpperBoundExcluded: 3
Properties	LowerBoundIncluded: the lower bound of the range UpperBoundExcluded: the upper bound of the range
Components	None
Relations	ReviewScoreRange.KartingCenter (1:N): the karting centers whose average review score falls in the range ReviewScoreRange.Track (1:N): the tracks whose average review score falls in the range ReviewScoreRange.Event (1:N): the events whose average review score falls in the range
Superconcepts	None
Subconcepts	None

Name	<b>NPilotsRange</b>
Synonym	None
Description	A filtering of the karting centers and tracks based on the number of pilots who participated to at least one race on the track of the karting center. who participated in at least one race on the track of the karting center.
Example of instance	LowerBoundIncluded: 0 UpperBoundExcluded: 100
Properties	LowerBoundIncluded: the lower bound of the range UpperBoundExcluded: the upper bound of the range
Components	None
Relations	NPilotsRange_KartingCenter (1:N): the karting centers whose number of pilots falls in the range NPilotsRange_Track (1:N): the tracks whose number of pilots falls in the range
Superconcepts	None
Subconcepts	None



Name	<b>NRacesRange</b>
Synonym	None
Description	A filtering of the karting centers and tracks based on the number of races that took place on the track of the karting center or on the karting center in general (the sum of the number of races on all the tracks of the karting center).
Example of instance	LowerBoundIncluded: 10000 UpperBoundExcluded: 20000
Properties	LowerBoundIncluded: the lower bound of the range UpperBoundExcluded: the upper bound of the range
Components	None
Relations	NRacesRange.KartingCenter (1:N): the karting centers whose number of races (the sum of all the races on all the tracks of that karting center) falls in the range NRacesRange.Track (1:N): the tracks whose number of races that took place on them falls in the range
Superconcepts	None
Subconcepts	None

Name	<b>NEventsRange</b>
Synonym	None
Description	A filtering of the karting centers and tracks based on the number of events that took place on the track of the karting center or on the karting center (an event that has two races on two different tracks of the same karting center is counted as one event for the karting center).
Example of instance	LowerBoundIncluded: 0 UpperBoundExcluded: 10
Properties	LowerBoundIncluded: the lower bound of the range UpperBoundExcluded: the upper bound of the range
Components	None
Relations	NEventsRange_KartingCenter (1:N): the karting centers whose number of hosted events falls in the range NEventsRange_Track (1:N): the tracks whose number of events that took place on them falls in the range
Superconcepts	None
Subconcepts	None

Name	<b>GoKartModel</b>
Synonym	None
Description	There exist many different rental go-kart models, such as Sodi RX7, Sodi SR4, CRG Centurion, OTL Storm Prokart, etc.
Example of instance	GoKartModel: Sodi RX7
Properties	GoKartModel: the name of the go-kart model
Components	None
Relations	GoKartModel_GoKart (1:N): the go-karts of that model GoKartModel_Track (N:N): the tracks where that model is available
Superconcepts	None
Subconcepts	None

Name	<b>TrackAsphalt</b>
Synonym	None
Description	A track can have different types of asphalt, such as asphalt, concrete, resin, tarmac, etc.
Example of instance	TrackAsphalt: Asphalt
Properties	TrackAsphalt: the name of the track asphalt
Components	None
Relations	TrackAsphalt..Track (1:N): the tracks with that asphalt
Superconcepts	None
Subconcepts	None

Name	<b>TrackDifficulty</b>
Synonym	None
Description	Track difficulty is a subjective measure of the difficulty of a track, it is decided by the karting center administrator based on the number of turns, the length of the track and other factors.
Example of instance	TrackDifficulty: Intermediate
Properties	TrackDifficulty: the name of the track difficulty
Components	None
Relations	TrackDifficulty_Track (1:N): the tracks with that difficulty
Superconcepts	None
Subconcepts	None

Name	<b>TrackLengthRange</b>
Synonym	None
Description	A filtering of the tracks based on their length.
Example of instance	LowerBoundIncluded: 0 UpperBoundExcluded: 300
Properties	LowerBoundIncluded: the lower bound of the range UpperBoundExcluded: the upper bound of the range
Components	None
Relations	TrackLengthRange..Track (1:N): the tracks whose length falls in the range
Superconcepts	None
Subconcepts	None

Name	<b>PopularTrack</b>
Synonym	Famous track
Description	<p>A popular track is a track that has been selected as favorite by at least <math>N</math> pilots.</p> <p>This subclass of <b>Track</b> is to be considered as a <b>view</b> of the database that invites the visitor during its navigation and at the same time speeds up the execution of the query.</p>
Example of instance	Empty (all the properties are inherited from <b>Track</b> )
Properties	None
Components	None
Relations	None
Superconcepts	Track
Subconcepts	None

Name	<b>ControversialEvent</b>
Synonym	None
Description	A controversial event is an event that has received at least $N$ reviews with a score lower than 25% of the maximum score and at least $N$ reviews with a score higher than 75% of the maximum score. This subclass of <b>Event</b> is to be considered as a <b>view</b> of the database.
Example of instance	Empty (all the properties are inherited from <b>Event</b> )
Properties	None
Components	None
Relations	None
Superconcepts	Event
Subconcepts	None



Name	<b>PopularEvent</b>
Synonym	None
Description	A popular event is an event that already took place, to which at least $N$ pilots participated and that received at least $N$ reviews. This subclass of <b>Event</b> is to be considered as a <b>view</b> of the database.
Example of instance	Empty (all the properties are inherited from <b>Event</b> )
Properties	None
Components	None
Relations	None
Superconcepts	Event
Subconcepts	None

Name	<b>UpcomingEvent</b>
Synonym	None
Description	An upcoming event is an event that has not yet taken place, its attribute <i>FirstDate</i> is in the future. This subclass of <b>Event</b> is to be considered as a <b>view</b> of the database.
Example of instance	Empty (all the properties are inherited from <b>Event</b> )
Properties	None
Components	None
Relations	None
Superconcepts	Event
Subconcepts	None

Name	<b>PriceRange</b>
Synonym	None
Description	A filtering of the events based on their price.
Example of instance	LowerBoundIncluded: 0 UpperBoundExcluded: 50
Properties	LowerBoundIncluded: the lower bound of the range UpperBoundExcluded: the upper bound of the range
Components	None
Relations	PriceRange.Event (1:N): the events whose price falls in the range
Superconcepts	None
Subconcepts	None

Name	<b>EventCategory</b>
Synonym	None
Description	The event can be open to every pilot (entry level difficulty), intermediate (for those pilots that feel more competitive) and pro (only pilots that show up at a high rank in the leaderboards can participate).
Example of instance	EventCategory: Open
Properties	EventCategory: the name of the event category
Components	None
Relations	EventCategory_Event (1:N): the events from that category
Superconcepts	None
Subconcepts	None

Site View	Public view		
Description	Empty		
User Groups	Visitor, Pilot, Clerk, Organizer, Karting center administrator, Information system administrator		
Use Cases	Register, Login, Explore karting centers by city, Explore karting centers by number of races, Explore karting centers by number of pilots, Explore karting centers by number of events, Explore karting centers by average review score, View all karting centers hosting upcoming events, Read details on karting center, Read reviews on karting center, Explore tracks in a karting center, Explore events by karting center, Explore tracks by asphalt type, Explore tracks by difficulty, Explore tracks by length, Explore tracks by city, Explore tracks by number of races, Explore tracks by number of pilots, Explore tracks by number of events, Explore tracks by average review score, Read details on track, Read reviews on track, Explore events by track, Explore leaderboards, Explore races from track, Explore lap-times of a race, Explore pilots from track, Read details on pilot, Explore events from pilot, Explore races from pilot, Explore events by city, Explore events by average review score, Explore events by price, Explore events by category, Explore events by popularity, Explore upcoming events, Explore controversial events, Read details on event, Explore karting centers by event, Explore tracks by event, Explore pilots from event, Explore races from event, Read reviews on event.		
Site View Map			
Area Name	Area Description	Objects	Priority
Home	The visitor is welcomed with a list of upcoming events, the tracks on which the events will take place and the karting centers hosting the events. By choosing one element from one of the three lists, he can move to other areas.	UpcomingEvent, Track, KartingCenter	High

KartingCenter	The default page allows the visitor to explore karting centers by filtering them using different criteria (access subschemes), then, when he selects a karting center, he can read its details and move to other areas to get further informations related to the karting center.	KartingCenter, City, NPilotsRange, NRacesRange, NEventsRange, ReviewScoreRange	High
Track	The default page allows the visitor to explore tracks by filtering them using different criteria (access subschemes), then, when he selects a track, he can read its details and move to other areas to get further informations related to the track.	Track, TrackAsphalt, TrackDifficulty, TrackLengthRange, City, NPilotsRange, NRacesRange, NEventsRange, ReviewScoreRange, GoKartModel, PopularTrack	High
Event	The default page allows the visitor to explore events by filtering them using different criteria (access subschemes), then, when he selects an event, he can read its details and move to other areas to get further informations related to the event.	Event, City, ReviewScoreRange, PriceRange, EventCategory, PopularEvent, ControversialEvent, UpcomingEvent	High

Race	The area is reached by selecting a track, an event or a pilot and gives the visitor a list of races, by choosing one he can read its details and move to other areas to get further informations related to the race.	Race	Medium
Pilot	The area is reached by selecting a track, a race or an event and gives the visitor a list of pilots, by choosing one he can read its details and move to other areas to get further informations related to the pilot.	Pilot	Medium
Laptime	The area is reached by selecting a race and gives the visitor a list of lap-times, by choosing one he can read its details and move to other areas to get further informations related to the lap-time.	LapTime	Low
Leaderboard	The area is reached by selecting a karting center or a track and gives the visitor a list of leaderboards, by choosing one he can read its details and move to the pilot area to get further informations related to the pilot who made the lap-time.	Leaderboard	Medium
Review	The area is reached by either selecting a karting center, a track or an event and gives the visitor a list of reviews related to the selected object, by choosing one he can read its details.	KartingCenterReview, TrackReview, EventReview	Medium

# Site views

Site View	Pilot		
Description	Empty		
User Groups	Pilot		
Use Cases	Logout, Read my details, Explore not yet confirmed reservations, C.U.D. races and reservations, Explore confirmed reservations, Explore my past races, Read details on race, Create review of karting center, Create review of track, Explore upcoming events applied to but not confirmed yet, Explore upcoming events not applied to, Explore my past events, Apply to an event, Read details on event, Create review of event.		
Site View Map			
Area Name	Area Description	Objects	Priority
Home	The pilot is welcomed with his details, a list of his past races and a list of events that he applied to and were confirmed.	Pilot, Race, Event	High



Reservations	The default page shows a list of confirmed reservations and a list of not yet confirmed reservations, by choosing an element from the second list the pilot can move to another page to edit or delete the reservation, the same page allows to create a new race and reservation.	Race, Reservation	High
Race	The area shows a list of past races the pilot participated in, by choosing one he can read its details, write a review of the karting center or the track that hosted the race.	Race, LapTime, KartingCenter, KartingCenterReview, Track, TrackReview (Pilot, Track, Timetable and KartingCenter when operating on Race)	High
Event	The area shows a list of events the pilot applied to but the application was not yet confirmed and a list of upcoming events the pilot did not apply to, by choosing one from the second list he can apply to it. The pilot can also write a review about the events he participated in.	Event, EventReview, Application	High

Site View	Organizer		
Description	Empty		
User Groups	Organizer, Information system administrator		
Use Cases	Logout, Explore my events, Read details on my event, U.D. events, Create event, Explore not yet confirmed applications, Confirm application, Explore races of the event, Read details on race, U.D. race, Create race		
Site View Map			
Area Name	Area Description	Objects	Priority
Home	The organizer is welcomed with a list of the events he created and a list of the applications he received.	Event, Application	High
Event	The area shows the list of events the organizer created in the default page, then by choosing one among the not yet confirmed applications he can confirm it. The organizer can also edit, delete or create new races that he can use to create new events or to add to the existing ones.	Event, Application, Race (EventCategory and Organizer when operating on Event, Pilot, Track, Timetable and Karting-Center when operating on Race)	High

Site View	Clerk		
Description	Empty		
User Groups	Clerk, Information system administrator, Karting center administrator		
Use Cases	Logout, Explore reservations, Confirm reservation, Explore reviews on karting center, Read review on karting center, Delete review on karting center, Explore reviews on track, Read review on track, Delete review on track, Explore reviews on event, Read review on event, Delete review on event		
Site View Map			
Area Name	Area Description	Objects	Priority
Home	The clerk is welcomed with a list of the reviews on the karting center he works for, on the tracks of the karting center and on the events hosted by the karting center.	Clerk, KartingCenterReview, TrackReview, EventReview	High
Reservation	The area shows a list of reservations made by pilots to the karting center, by choosing one he can confirm it.	Track, Reservation (Timetable as the list of reservations)	High
Review	The review area is reached by selecting a review from the default page of the default area. The clerk can read it and delete it if considered inappropriate.	KartingCenterReview, TrackReview, EventReview, Pilot	High

Site View	Karting center administrator		
Description	Empty		
User Groups	Karting center administrator, Information system administrator		
Use Cases	Logout, Explore my karting centers, Explore pilots by karting center, Explore pilots, Read details on pilot, U.D. pilot, Create pilot, Explore clerks by karting center, Explore clerks, Read details on clerk, U.D. clerk, Create clerk, Explore tracks (related to my karting centers), Explore tracks by karting center, Read details on track, U.D. track, Create track, Explore races (related to my karting centers), Read details on race, U.D. race, Create race, Explore go-karts dedicated to tracks of my karting centers, U.D. go-kart dedicated to track, Create go-kart		
Site View Map			
Area Name	Area Description	Objects	Priority
Home	The karting center administrator is welcomed with a list of his karting centers, by choosing one he can get the list of tracks, the list of clerks or the list of pilots related to the selected karting center.	KartingCenterAdministrator, KartingCenter, Pilot, Clerk, Track	High
KartingCenter	The area shows a list of karting centers the administrator is responsible for, by choosing one he can edit or delete it, or create a new one.	KartingCenter, City	High

Track	The area shows the list of all the tracks from all the karting centers the administrator is responsible for, by choosing one he can edit or delete it, or create a new one.	Track, (GoKartModel, TrackAsphalt and Track when operating on Track)	High
Race	The area shows the list of all the races from all the karting centers the administrator is responsible for, by choosing one he can edit or delete it, or create a new one.	Race, Reservation (Timetable as the list of reservations, Pilot, Track and KartingCenter when operating on Race)	High
Pilot	The area shows the list of all the pilots (also from other karting centers), by choosing one he can edit or delete it, or create a new one.	Pilot	High
Clerk	The area shows the list of all the clerks that work in a karting center the administrator is responsible for, by choosing one he can edit or delete it, or create a new one.	Clerk (Karting center when operating on Clerk)	High

# Site views

Site View	Information system administrator		
Description	Empty		
User Groups	Information system administrator		
Use Cases	Logout, Explore karting center administrators, Read details on karting center administrator, U.D. karting center administrator, Create karting center administrator, Explore karting centers, Read details on karting center, U.D. karting center, Create karting center, Explore organizers, Read details on organizer, U.D. organizer, Create organizer, C.R.U.D. cities, C.R.U.D. go-kart models, C.R.U.D. track asphalt types, C.R.U.D. track difficulties, C.R.U.D. track length ranges, C.R.U.D. review score ranges, C.R.U.D. n. pilots ranges, C.R.U.D. n. races ranges, C.R.U.D. n. events ranges, C.R.U.D. price ranges, C.R.U.D. event categories		
Site View Map			
Area Name	Area Description	Objects	Priority
Home	The area welcomes the information system administrator with his own details.	Admin	High
K.C.Administrator	The area shows a list of all the karting center administrators, by choosing one he can edit or delete it, or create a new one.	KartingCenterAdministrator (KartingCenter when operating on KartingCenterAdministrator)	High

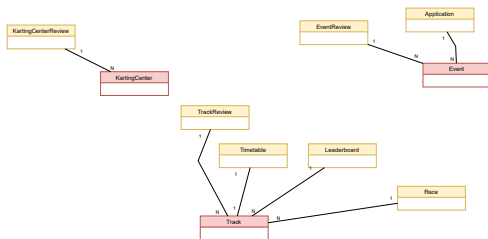
KartingCenter	The area shows a list of all the karting centers, by choosing one he can edit or delete it, or create a new one.	KartingCenter, (City and KartingCenterAdministrator when creating KartingCenter, KartingCenterReview deleted when deleting KartingCenter)	High
Organizer	The area shows a list of all the organizers, by choosing one he can edit or delete it, or create a new one.	Organizer	High
AuxiliaryEntity	The area allows to create, read, update and delete the auxiliary entities.	City, GoKartModel, Track-Asphalt, TrackDifficulty, TrackLengthRange, ReviewScoreRange, NPilotsRange, NRacesRange, NEventsRange, PriceRange, EventCategory	Medium

In WeRace the core entities are **Karting center**, **Track**, and **Event**, the union of each entity with the set of its weak entities forms the core subscheme associated to the core entity. Core entities are accessible one from the other through different paths, the interconnection subschemes allow for a fluent navigation between them without the need to go back to the home page. In order to provide a better experience for the user, the core entities are made accessible through two other types of subschemes: the visitor will benefit from access subschemes, the registered users will additionally benefit from personalization subschemes.

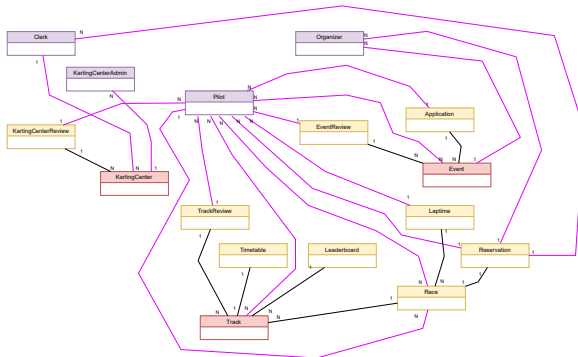
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<sup>0</sup>The following four slides are thought to be scrolled in full screen just to grasp the whole picture, then each subscheme will be zoomed in.

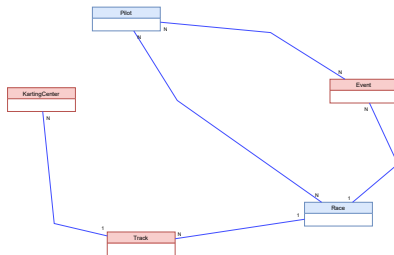


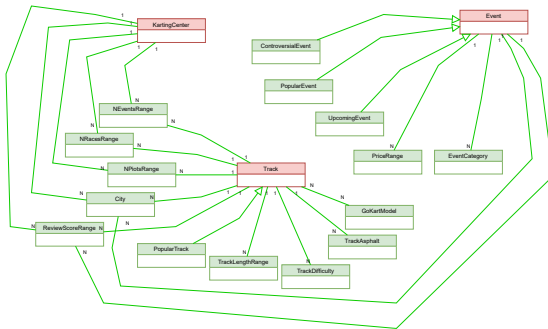


# Personalization

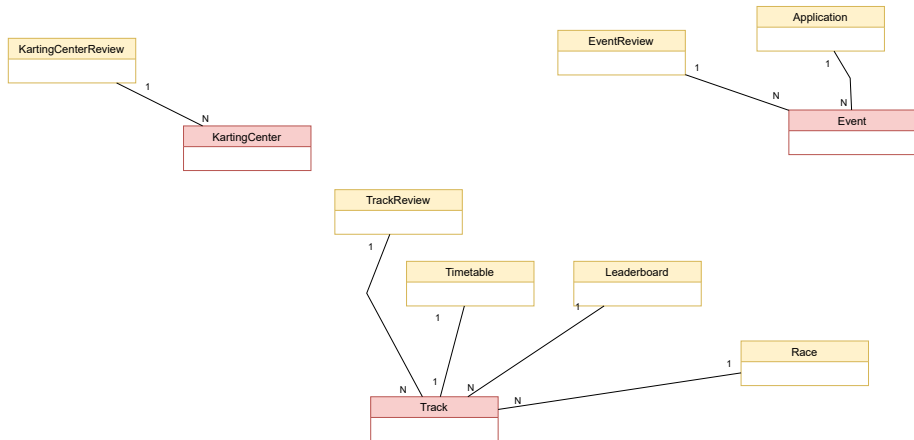


# Interconnection

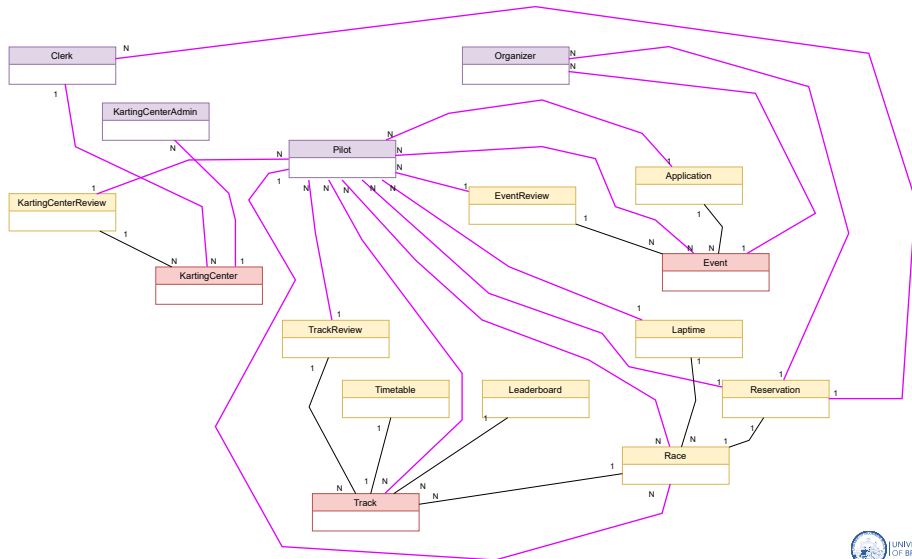




# Core subschemes



# Personalization subschemes



# Personalization subschemes

Among the five registered users, the information system admin is the one that does not need a personalization subscheme, his duty is to manage the system and, with it, all the entities, without a specific focus on some instances with respect to others. The **Pilot** is the user with the highest number of personalization subschemes:

- he is the only one able to write the three types of reviews,
- he can participate to races (and, as a particular case, he has a personalized access to his last race),
- for every race he participate to, he has a personalized list of his lap-times (made public, but still personalized to him),
- he can ask for a reservation on a track of a karting center,
- he can apply to events (and, as a particular case, he is accepted to participate to an event),
- he has a personalized list of his favourite tracks.

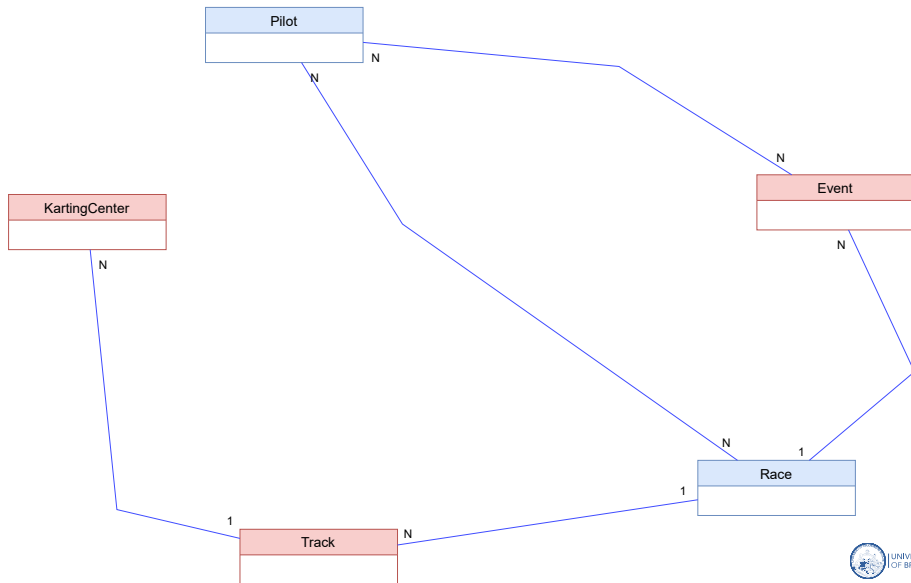
The **Organizer** has a personalized access to the reservations he made to create races that are part of his events, then he has access to his events, he does not need a personalized access to the applications he received and confirmed because all the applications received must have been to one of his events and he is the only one able to accept them, so the personalized access to the events is sufficient.

The **Clerk** has a personalized access to the karting center he works for, all the clerks of a karting center can access the same list of not yet confirmed reservations to a track of the karting center, once a reservation is confirmed, the name of the clerk who confirmed it is associated to the reservation, and this the second personalized access of the clerk.

The **Karting center administrator** has a personalized access to the karting centers he is responsible for.



# Interconnection subschemes



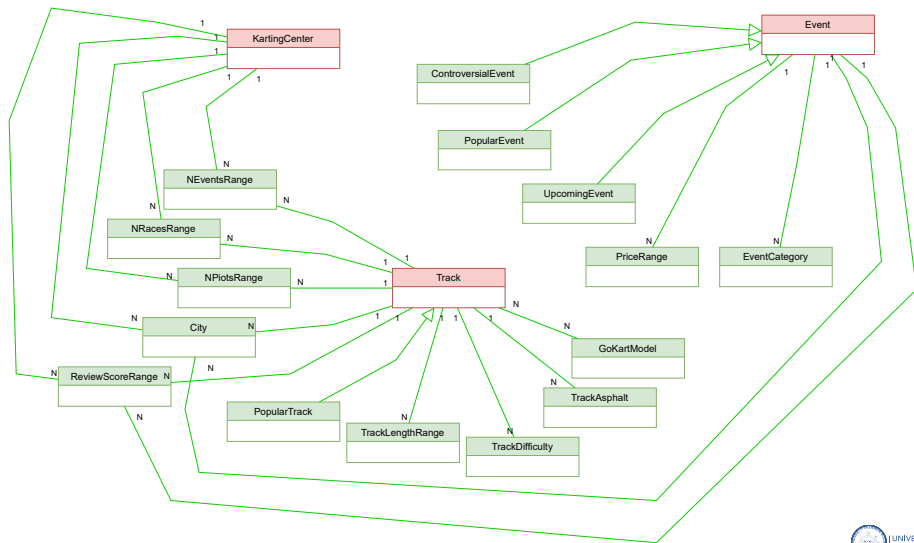
# Intreconnection subschemes

The core entities are reachable one from the other through different paths, among which two most important can be identified, which recursively contain the other interconnection subschemes:

- the karting center has many tracks (this relationship is already an interconnection subscheme between **Karting center** and **Track**), and the tracks are the places where the races take place, so when a race is part of an event, the event is connected to different karting centers through the path **Event** → Race → **Track** → **Karting center**, this path also allows the track to be connected to the event, and this is another interconnection subscheme between **Event** and **Track**.
- The pilot can participate to different races and events, so e.g. when a visitor is exploring a leaderboard and sees the name of a pilot, he might be interested in knowing more about the events he participated to, and these events might have been hosted by different karting centers from the one that has the track whose leaderboard the visitor was started from. The path **Karting center** → **Track** → Race → Pilot → **Event** is the interconnection subscheme between **Karting center** and **Event** that can lead from pilot that raced in a karting center to other events the pilot participated to, and the inverse path can lead from an event to the pilots that raced in it and what other karting centers they raced in.

There are many different paths that can be followed to also reach different instances from the same entity, the first path is the most *reasonable* and the second is an example of a possible navigation that the visitor might want to follow.

# Access subschemes



The access subschemes are the most important for the visitor, they allow him to reach the core entities through an explorative research rather than a lookup search. The visitor is offered a series of filters to reach the core entities, the filters are not to be mistaken for weak entities, they are categorization criteria that can be created before even creating the core entities. It is worth noticing that among the access subschemes there are some entities that extend the core entities (PopularTrack, PopularEvent, ControversialEvent, UpcomingEvent), these should not be considered as real extensions of the core entities as it happens in an object-oriented model, they are to be considered as a materialized view of the database, a stored query that filters out many of the instances of the core entities, keeping only those that satisfy a certain condition.

The hypertext model is composed of a preliminar phase that produces a coarse hypertext model, followed by a detailed phase that produces the detailed hypertext model. The second phase is not presented in this report, but a prototype created with the tool *Webratio* will be made available.

# Coarse hypertext model

In addition to the commonly used primitives

$\text{Core}(\text{core\_entity}, \text{component}_1, \dots, \text{component}_N),$

$\text{Access}(\text{Core\_entity}, \text{access\_entity}, \dots, \text{access\_entity}_N),$

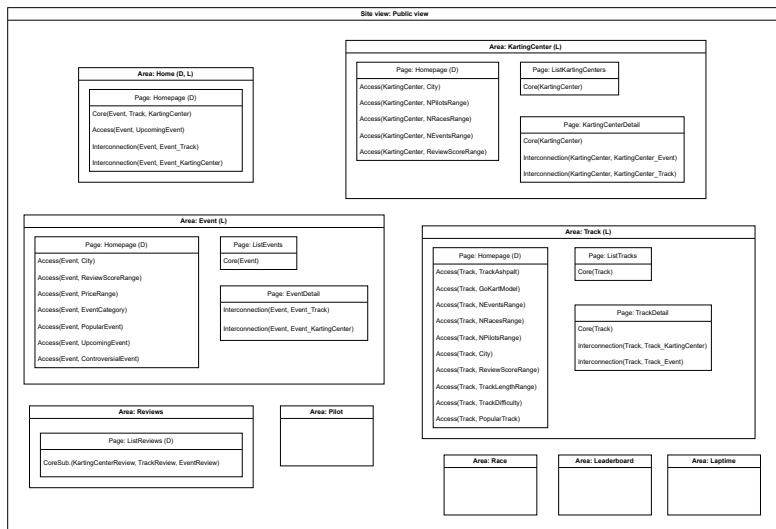
$\text{Interconnection}(\text{entity}_1, \text{role}_1, \dots, \text{role}_N),$

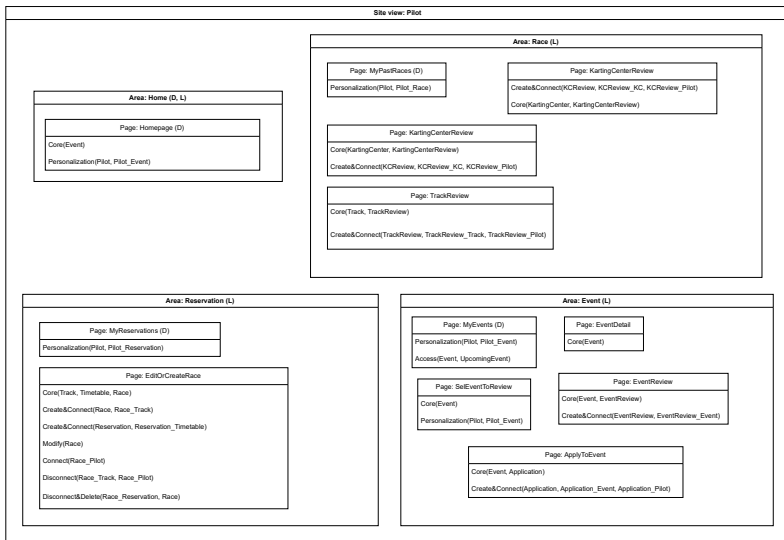
$\text{Personalization}(\text{entity}_1, \text{role}, \dots, \text{role}_N)$

and others, we adopt the primitive

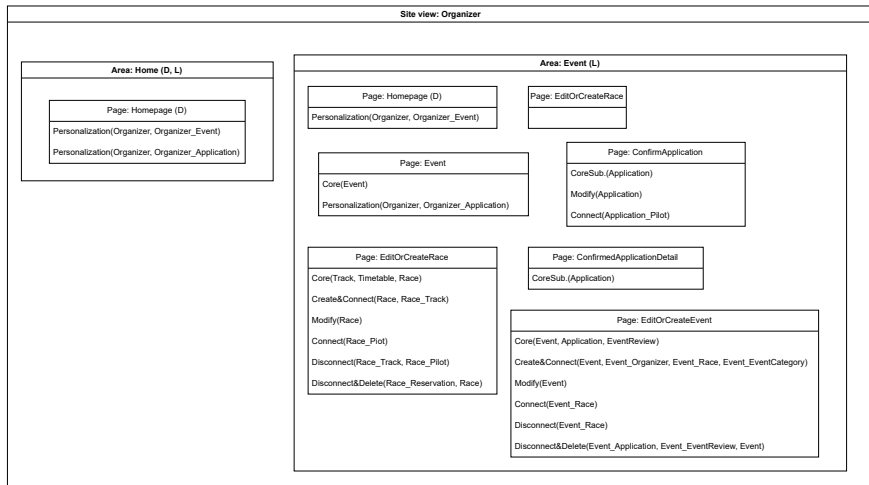
$\text{CoreSub.}(\text{core\_weak\_entity}_1, \dots, \text{core\_weak\_entity}_N)$

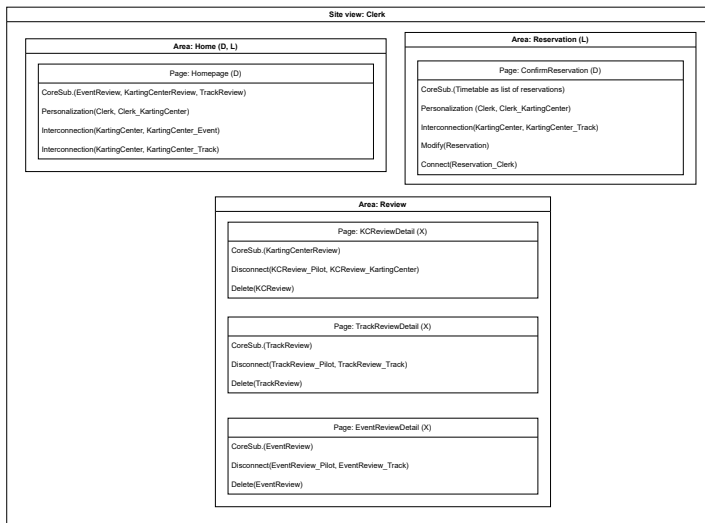
to represent the focus of a page on the components only of a core entity, without the need to show the core entity itself.



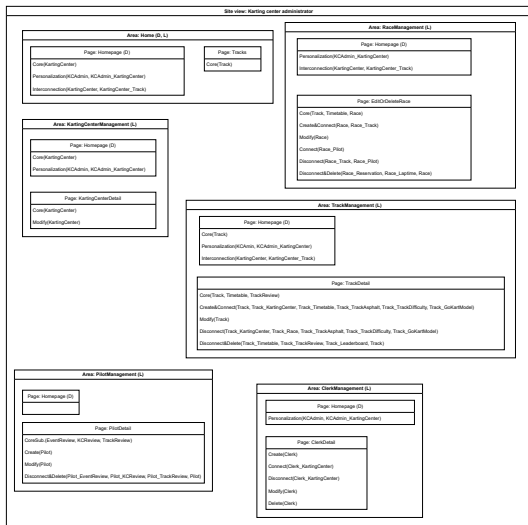




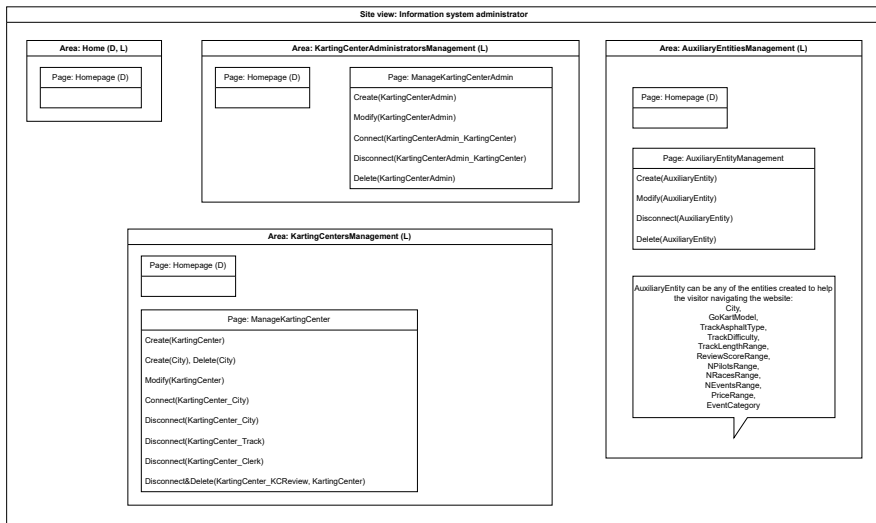




# Karting center administrator

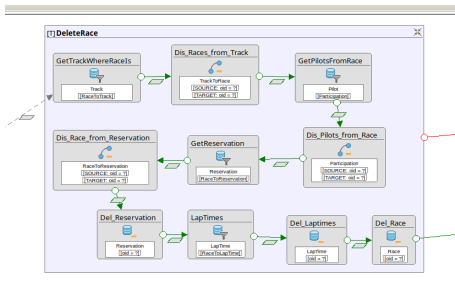


# Information system administrator



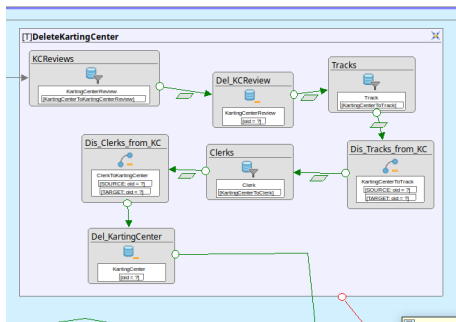
Explaining the possible improvements to the current work would take at least as many slides as the ones presented so far, so here it is mentioned what I consider be one of the most difficult choices to make...

# Which are the real weak entities



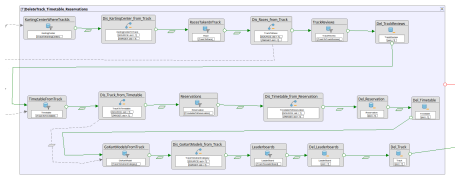
The deletion of an entity implies the deletion of its weak entities, e.g. the deletion of a karting center implies the deletion of its reviews. In many cases there is no need to overthink about what should be deleted together with an entity, e.g. in figure 150 is shown the deletion of a race: its weak entities lap-time and reservation are deleted together with it.

# Which are the real weak entities



Sometimes it is not trivial to choose whether an entity should be the weak entity of another one or not, e.g. the deletion of a karting center should or should not imply the deletion of its tracks? The choice made in WeRace is that the deletion of a karting center does not imply the deletion of its tracks (as shown in figure 151), in fact, another karting center could buy the tracks of the karting center being deleted.

# Which are the real weak entities



The deletion of a track is another example where the choice of what to delete is not obvious: a race can happen only if hosted by a track, this leads to the conclusion that the race is a weak entity of the track, but does the deletion of a track really imply the deletion of all the informations on the races that happened on it? Although as of now the race is a weak entity of the track, in WeRace (as shown in figure 152) the deletion of a track does not imply the deletion of all the races that happened on it, in fact, keeping the information on how many races happened in the karting center or how the pilots performed compared to each other might still be relevant independently of the existence of the track. Notice that the deletion of a track still implies the deletion of the other two weak entities, timetable and leaderboard. Another specific choice made in WeRace is that the reservation, a weak entity of the race but not of the track, is deleted together with the track because, differently from the race, does not carry relevant information in addition to the race that is kept.

In a future work, it is worth to reconsider the policies on what to delete *in cascade* with the deletion of an entity.