

LULEÅ TEKNISKA UNIVERSITET

Sprint 4

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Summary

We are working on a e-commerce site for selling patches and accessories such as belts and zippers for student overalls. It is intended to be dynamic with a fully functional content management system. For educational purposes Ruby on Rails was chosen since none of us had any experience with ruby. Scrum planing was done at Trello.com and GitHub.com was used as VCS.

User stories was set up to define what functionality we wanted the site to have. From this the database schema was defined. The user stories were then broken down into Scrum stories and tasks, given importance and time estimates. Some basic test cases were added.

The biggest challenges were time-estimates and scope-creep.

We decided not to try to implement any payment methods. Sales campaigns, though drafted, were later dropped.

Methodology

First a quick mock-up was done. From this user stories was drafted to see what kind of functionality should be included. The functionality were translated to the first draft of a database schema by identifying all nouns and writing them on Post-Its. Every noun became an entity, a table, and was given properties. Relationships were mapped and where there was a many to many relationship connecting tables were added.

The user stories were then broken down into backlog stories, which were further broken down into tasks. Every story was given an importance rating and a time estimate. New, improved design mock-ups were drafted for frontend-oriented stories.

Halfway through each sprint the sprint backlog was reviewed and stories were re-prioritized and re-estimated. After each sprint a sprint-review was held, and before every sprint started a sprint planning meeting was held, reworking the product backlog and adding tasks that had come up during the preceding sprint.

User stories

Register an account

1. User arrives at the page. Figure 7
2. An unregistered user can only browse the site if the user tries to use any functionality he will be taken to the login page which will let him register. Figure 8
3. User provides minimal amount of info needed for an account. Figure 9
4. On successful registration the user is greeted with a message and can now start using the site fully. Figure 10

Edit profile

1. By pressing the "Profil" button in the menu the user can access his profile. User sees that his full profile isn't filled in, so he presses "Ändra" (change). Figure 11
2. This brings the user to the profile editing page, where he can fill in the rest of his information. Figure 12

Place order

1. The user browses the categories and finds something he likes, in this case patches. He does not, however know what kind of patches he's interested in so he presses patches, which renders all products of the subcategories as well. Figure 13
2. The user finds a product he likes and can either add it to his cart directly or click the product and be brought to the product page, containing more information.
3. In this case he wants to know a little more about the product. He's taken to the product page where he can read some more info, see the rating of the product or read reviews from other users. Figure 14
4. After browsing for a while and adding some products it's time to check out. He clicks "Kundkorg" to review his cart. Figure 15
5. After checking that everything is correct he presses "Kassa" and is taken to the checkout
6. To place an order an address has to be given. Since this user has filled in his full profile information his address is sourced from the profile, but could be changes by the user if he wishes this order to be delivered somewhere else. 16
7. Upon completion the user is greeted with a success message and an order confirmation. Figure 17

Adding a review

1. The user has received his products and now wishes to add a review to it.
2. He goes to the product he ordered. 19
3. Here he can either leave just a rating, or as in this case add a review. He cannot, however leave a review without giving a rating.
4. Upon completion he is greeted with a success message and can control that the review is correct.
5. If, in the future, the user would change his mind about the product he can go back and either change or remove the review. 20

Changing something as an admin

1. An admin signs in just as a regular user. Figure 8
2. After signing in the admin is greeted with some changes in the interface for a more streamlined experience for changing things. Figure 21

User roles

Användare

- Butiksadministratör
 - r/w priser
 - r/w kampanjer
 - r/w lagerstatus
 - r/w kategorier
 - r/w reviews (for cleaning up spam)
 - r leveransstatus
 - r kundinfo
- Lagerarbetare
 - r/w lagerstatus
 - r/w leveransstatus
 - r kundinfo
- Inloggad kund
 - r/w sin egen kontaktinformation
 - r/w own reviews
 - r other customers reviews
 - lägsa sin egen orderhistorik
 - lägsa sortimentet (produkter, priser, kampanjer, lagerstatus)
 - läggga ordrar
 - Spara/skicka kundkorg

See Figure 1 - 3

System architecture

During development we run the system on Ruby on Rails' (RoR) built in web server Puma and SQLLight3 for simplicity, but intend to move to a MariaDB database and a Nginx web server with Phusion Passenger for RoR. We host the servers ourselves because it seemed fun, educational and fairly simple.

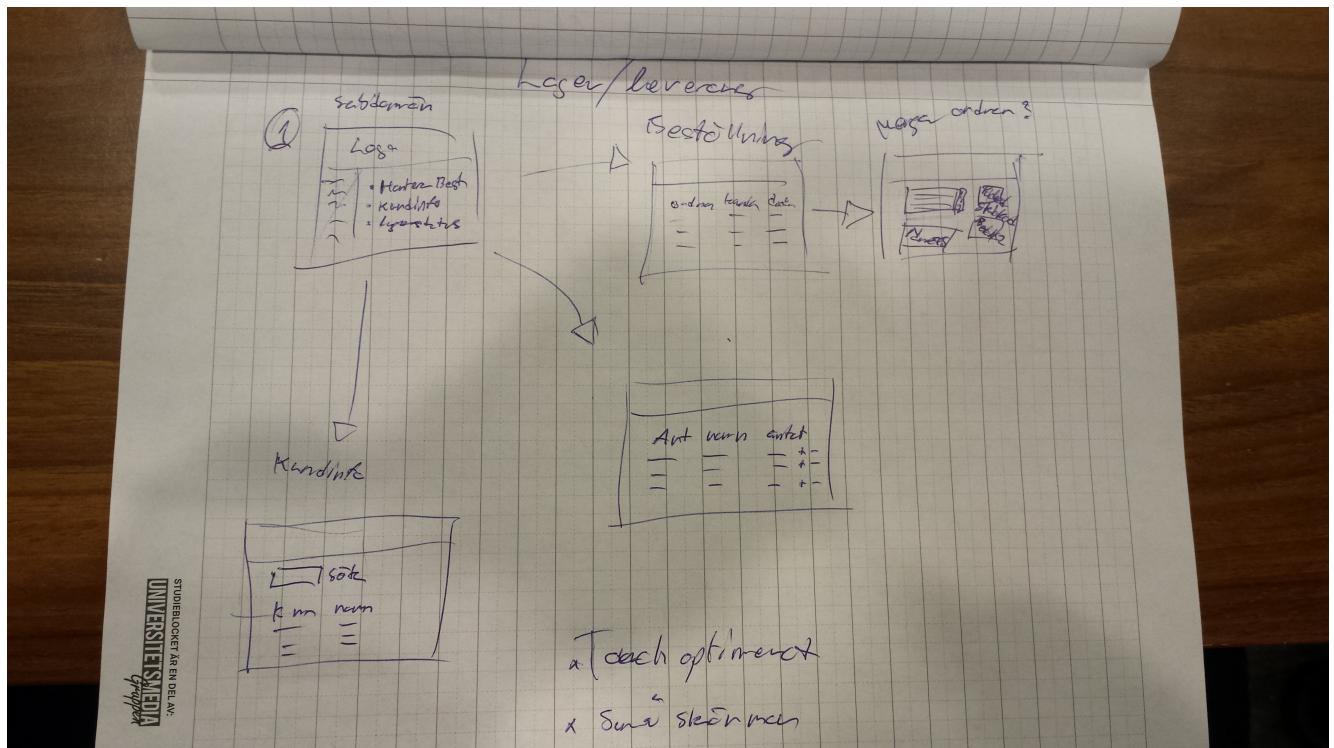


Figure 1

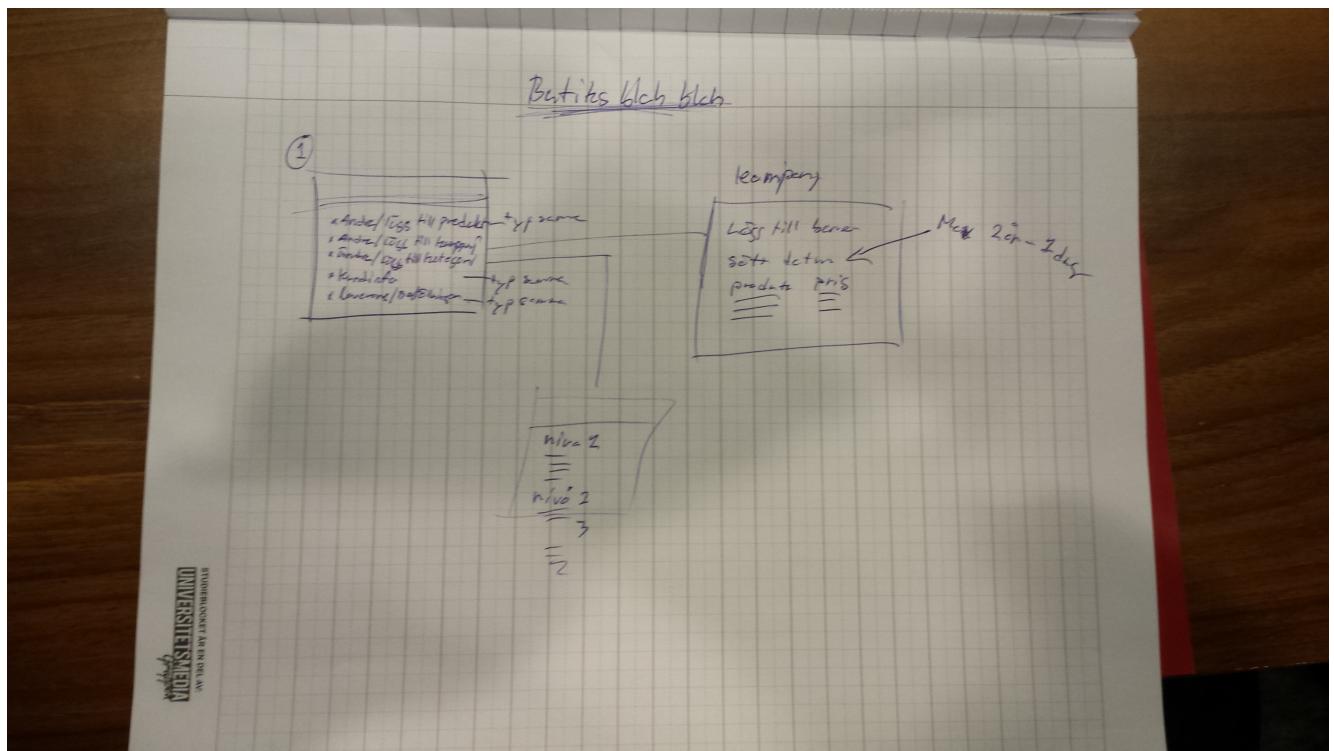
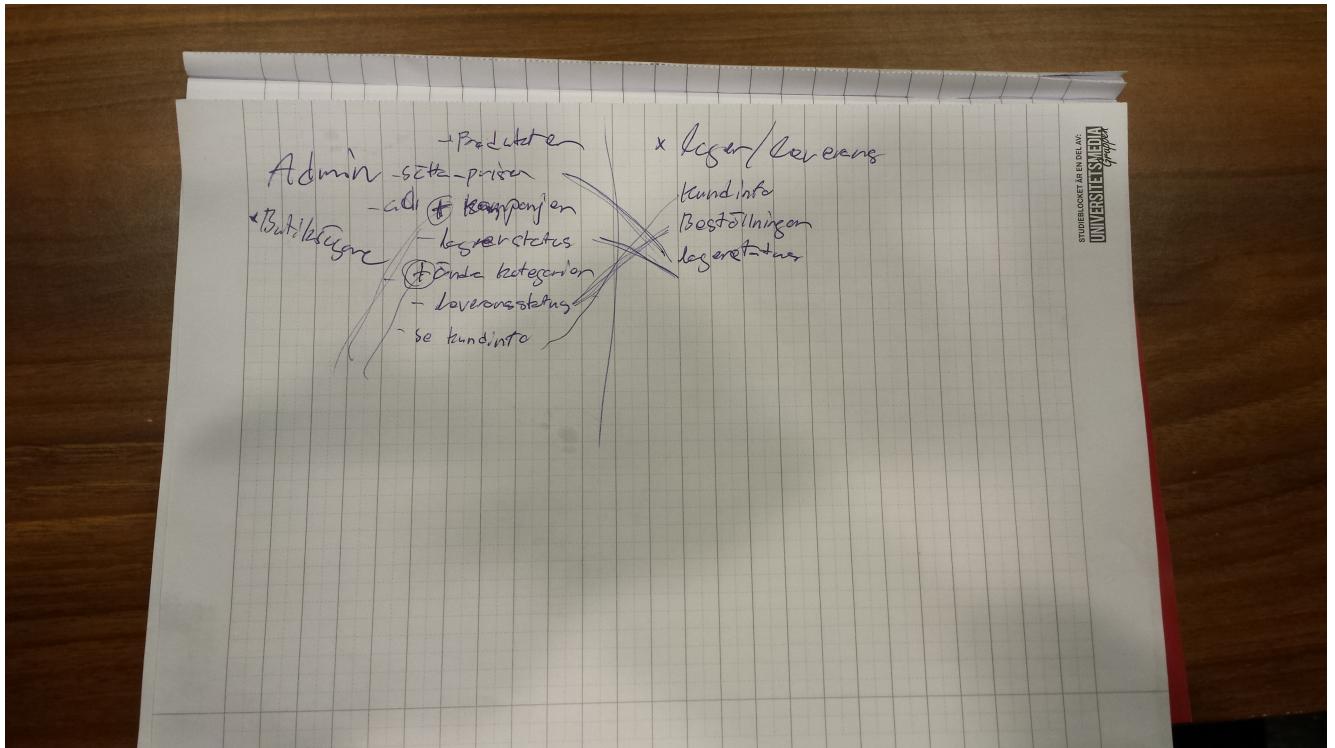


Figure 2

**Figure 3**

Backlog

The backlog was made after discussions after breaking down the user stories into backlog stories, which were further broken down into tasks. They were then given priorities and time estimates. We tried to have a sit down halfway through every sprint to see if any stories needed to be broken down into smaller stories or if some stories needed to be combined. After that the stories would be re-prioritized and re-estimated.

These backlog items were dealt with during this (last) sprint. Figure 4 includes a snapshot of the scrum board at the end of this sprint.

#	Sprint 4	Priority	Time est.
301	Startsida	100	2
302	Dynamisk meny frÅen kategorier	90	2
304	Produktsida	110	4
305	Kundkorg	80	8
307	Profilsida (kundkort)	45	2
308	Orderhistorik	45	1
309	Kundinlogg	50	2
310	Registrering	60	4
312	kommentarer/betygsÅttning	70	8
313	Produktkategorier	75	2
400	Backendinloggning	25	2
1	Personnummer -/+ hantering	5	1

These stories were put on hold and eventually scrapped from the project.

#	Left in backlog	Priority	Time est.
410	Kampanjhantering	10	3
311	ProduktsÄükning	45	1
306	Betalsida	5	12

Planing is done at Trello.com <https://trello.com/b/JxDCHBcm>

This is just a small section of the backlog. For history of all sprints and deeper explanation of the backlog items, refer to Trello.

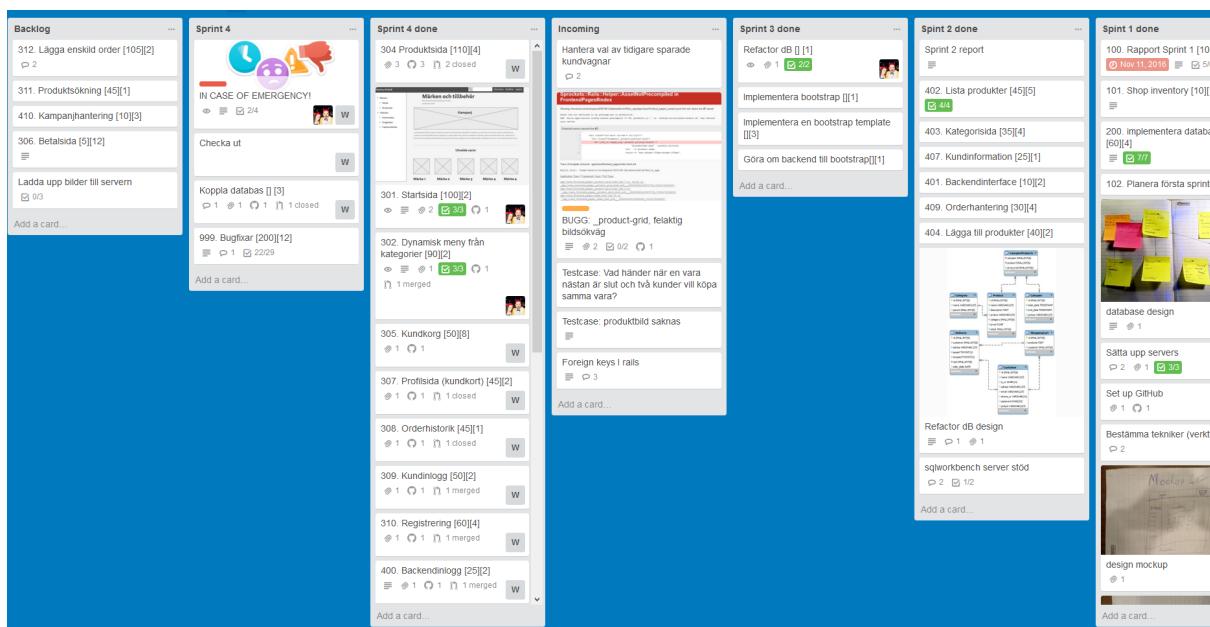


Figure 4: Screenshot of the current state of the scrum board.

Database schema

See Figure 5

Code

All code is available at github. <https://github.com/nikalas/D0018E-Databasteknik.git>

Test case specifications

Problem: Item out of stock?

A customer adds a product to the basket. If the product goes out of stock before checkout, how is this handled?

Solution:

At checkout a check is made if all the products in the shopping cart is in stock. If not the customer is brought back to the "carts" page and asked to remove the product(s) that is no longer available and that the cart has to be updated.

Limitations and improvements

We decided to put off saving payment methods and/or information. Products search, sorting, sale campaigns, and uploading pictures through the backend has also been put on hold, since we didn't have time to fully implement them. In a few places the internal quality is suffering and some refactoring could most certainly benefit the code. A interface for warehouse personnel was not implemented. This user role was dropped because it did not feel necessary. Some preliminary work on permissions was done but nothing more. Our production server were initially planned to be a Nginx webserver with Phusion Passenger for RoR and a MariaDB database server. Nginx was later dropped in favor of Rails built in server Puma. This server does however have some problems, mostly related to updating the webpage, that could have been avoided if we had more experience with RoR in the beginning.

Challenges and problems

The greatest challenges were no doubt time estimates and scope-creep. As you learn more, you want to add more, risking not making the deadline and letting other features fall behind. Another problem we had was that RoR's ActiveRecord does a whole lot for you. This means that you can set everything up really good in the rails models, but the actual database isn't very well optimized. Another problem we had was that even though there are some unit tests in place, it's easy to forget to do manual testing. When you're working on a deadline this makes quite some bugs slip through which resulted in us having to spend the entire last 24 hours before hand-in with testing and bugfixing. And there were a few (see figure 6). We did manage to get them down from 29 to 6, most remaining being purely superficial though. All in all thought we didn't really have any big problems. Probably because we did a lot of structured

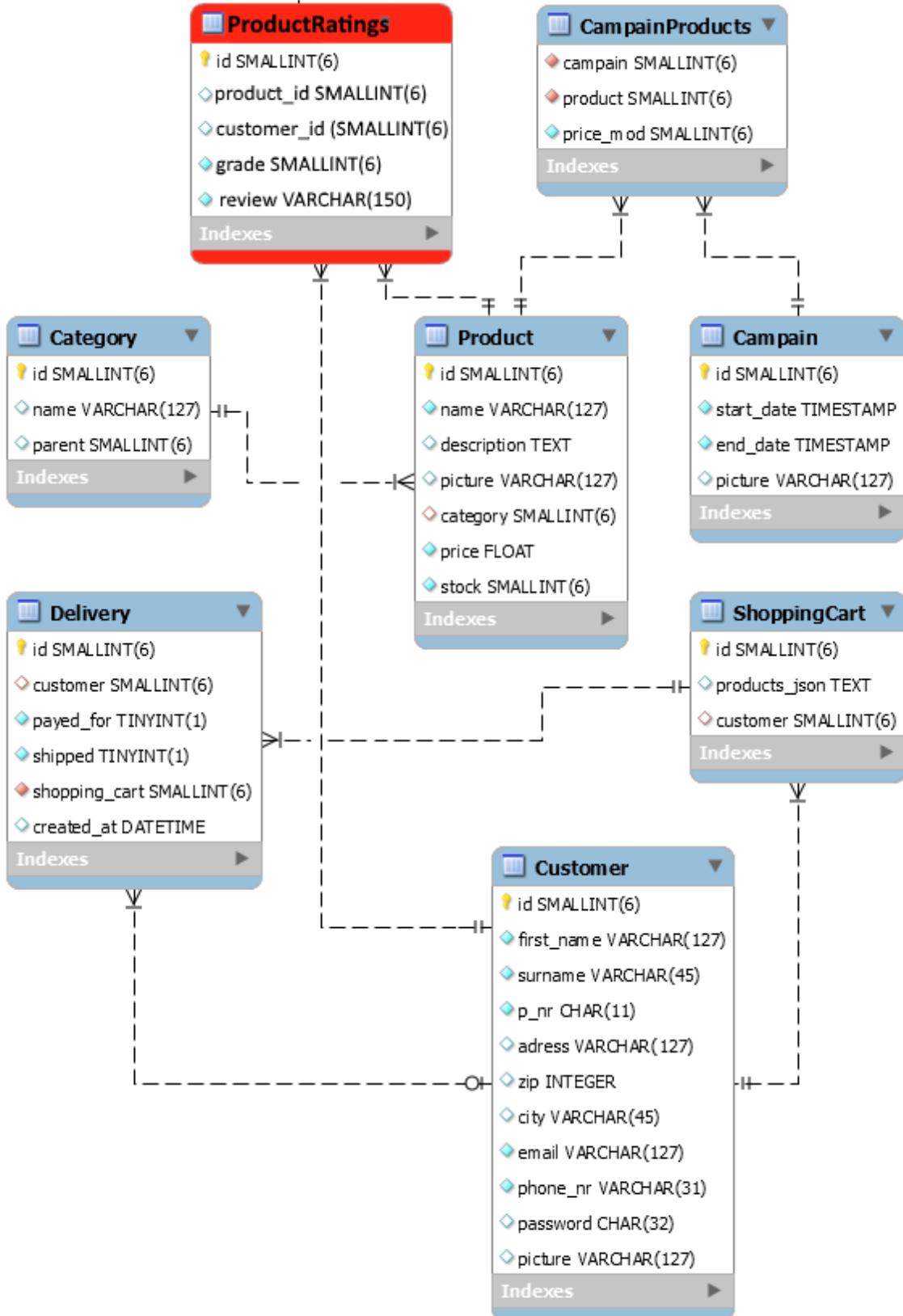


Figure 5: Database design. (not including reworked ShoppingCart)

planning going into the project. A major bug we had was the possibility of placing another order with the a previosly used shopping cart. This has been fixad as can be seen in figures 22 - 26

Description [Edit](#)

Current bugs *found* in the D0018E project. Shouldn't actually be here but on their respective cards. Still, collecting them all here for the sprint final burndown kind of made sense.

[Add](#)

carts

89%

- ~~Carts_helper line 3: remove `:id`~~
- ~~Carts_helper line 9: change to db agnostic syntax `.order(created_at: :desc)`~~
- ~~/carts/:id add total price for cart~~
- ~~/carts/ claims carts from previous logged in users? maybe drop functionality~~
- ~~/carts/ shows all carts, not only for current customer~~
- ~~Länk från "inköpslista" till "kassa" är borked. Länkar till `/order` (no route matches [GET] /order)~~
- ~~only admin sees any carts~~
- ~~Stop used (orderd) cart from being selected~~
- select a cart from users old carts if no items are in the current one on login

[Add an item...](#)

[Hide completed items](#) [Delete...](#)

Profil

100%

- ~~Se tidigare beställningar wrong link, goes to /orders.id~~
- ~~Se tidigare beställningar only shows deliveries if admin~~
- ~~Välj kundkorg lists all carts for all users~~
- ~~Välj kundkorg does not allow to load a cart~~
- ~~Ändra användarinformation lets users with `permission=1` change permission~~

[Add an item...](#)

[Hide completed items](#) [Delete...](#)

Ratings

100%

- ~~On update success `back` sends user to "all comments" rather than back~~
- ~~on `new` fail lets user post as any user~~ 10
- ~~move new comment initialization 'till after logged_in? check~~
- ~~(low prio) edit comments~~
- ~~make graded scale~~

[Hide completed items](#) [Delete...](#)

Members

Labels

Checklist

Due Date

Attachment

[Power-Ups](#)

GitHub

[Actions](#)

Move

Copy

Subscribe

[Archive](#)

Share and more...

Patches-N-Stuff - +

Patches-N-Stuff ← link to index page

menu → Inköpslista Profil → Logga in Checka u
Changes depending on user state (if logged_in?)

Märken ← Categories

- » Vävda
- » Broderade

Tillbehör

- » Dragkedjor
- » Karbinhakar
- » Capshanddukar

Här hittar du allt du behöver för din studentoverall.

Märken och tillbehör

Utvalda produkter

 <p>Randomized items →</p> <p>Störsten</p> <p>Pris: 100.0:-</p> <p>Buy</p>	 <p>Kränt</p> <p>Pris: 20.0:-</p> <p>Buy</p>
 <p>JAG STÖDJER Musikhjälpen 2016 FÖR ATT BARN KAN GÖRA MÅLTENNA ATT GLÄNZA</p>	

<https://d0018e-nikeli.c9users.io/> [1/1]

Figure 7: Greeting page of the web shop.

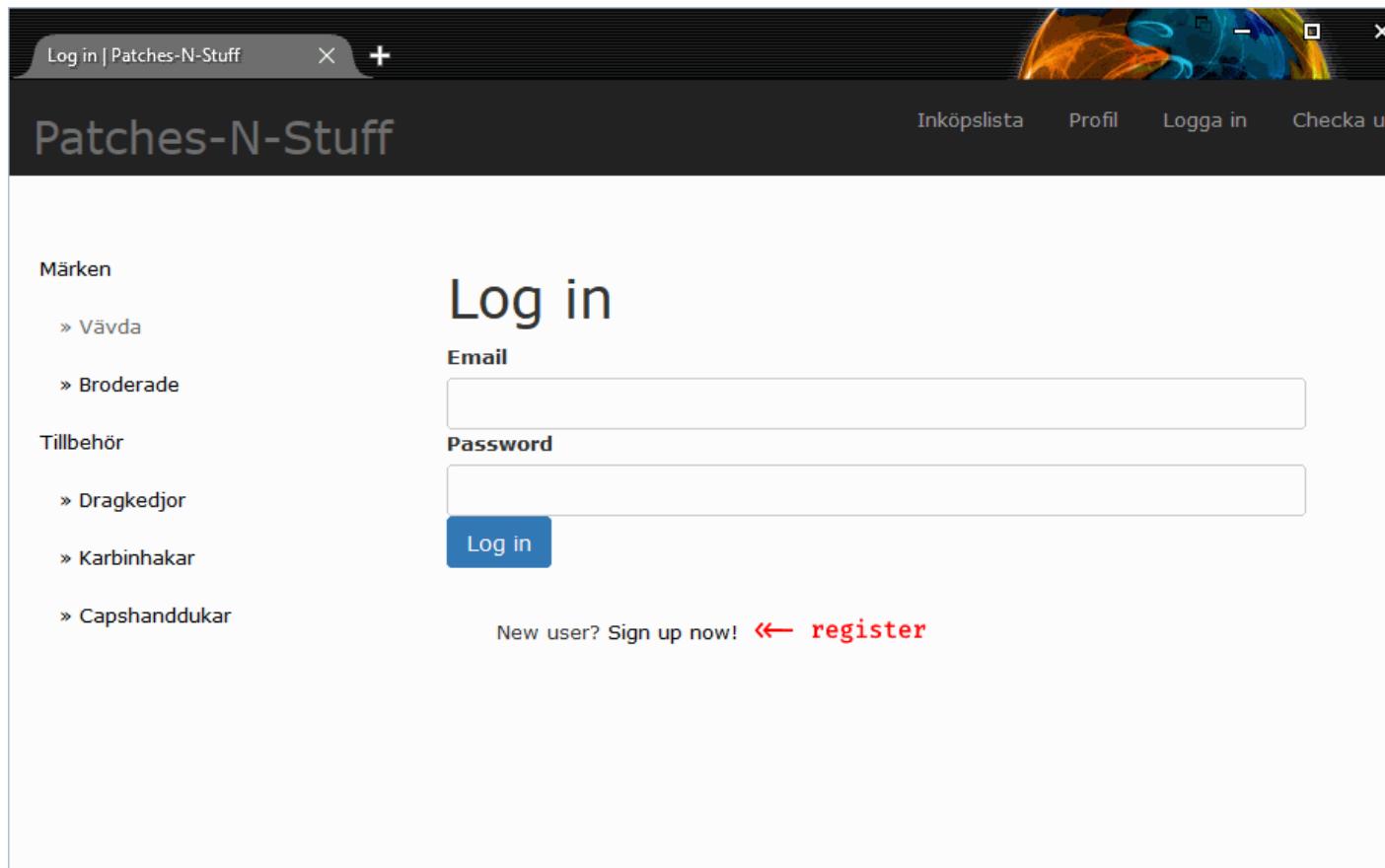


Figure 8: Login page

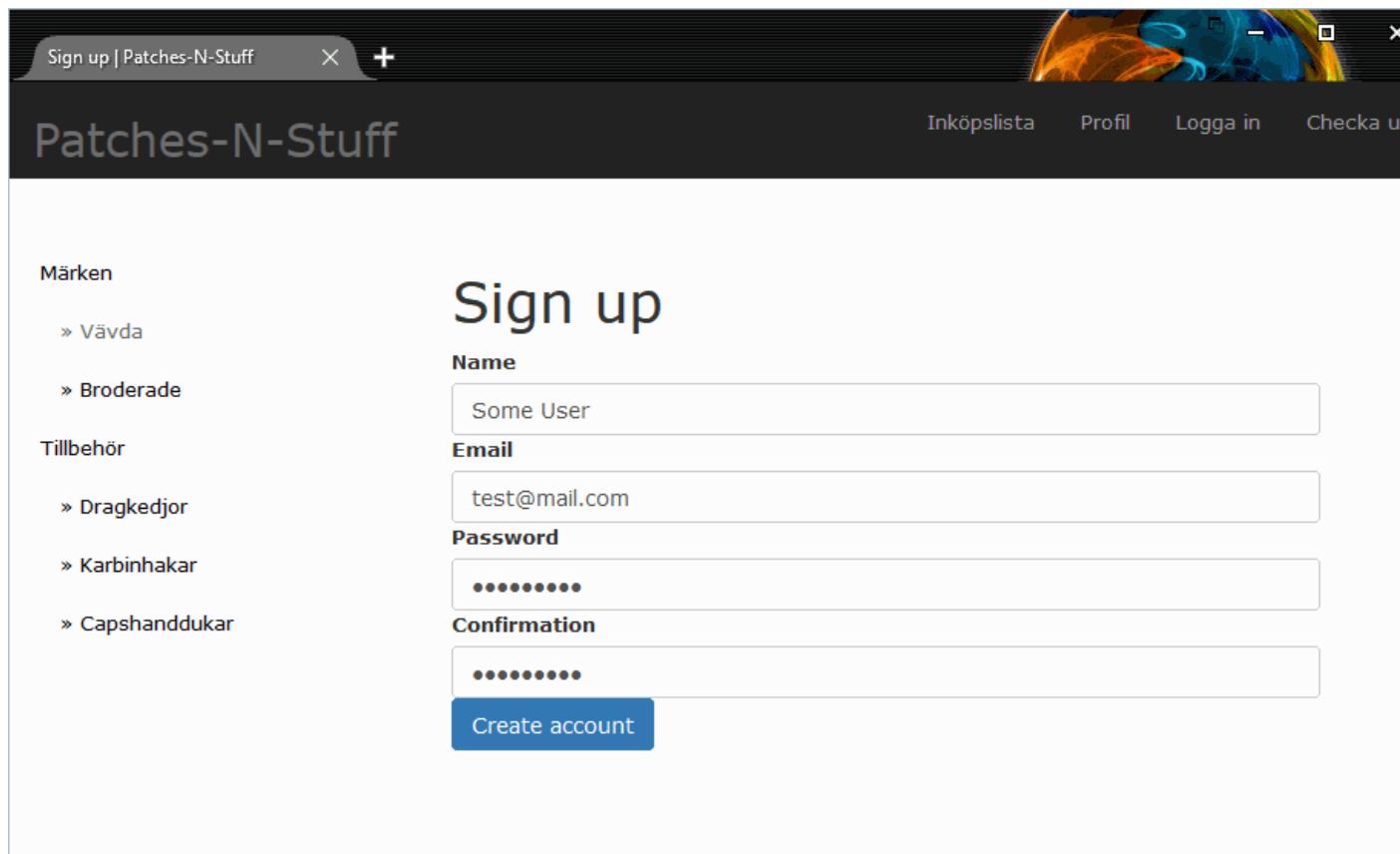


Figure 9: Register page

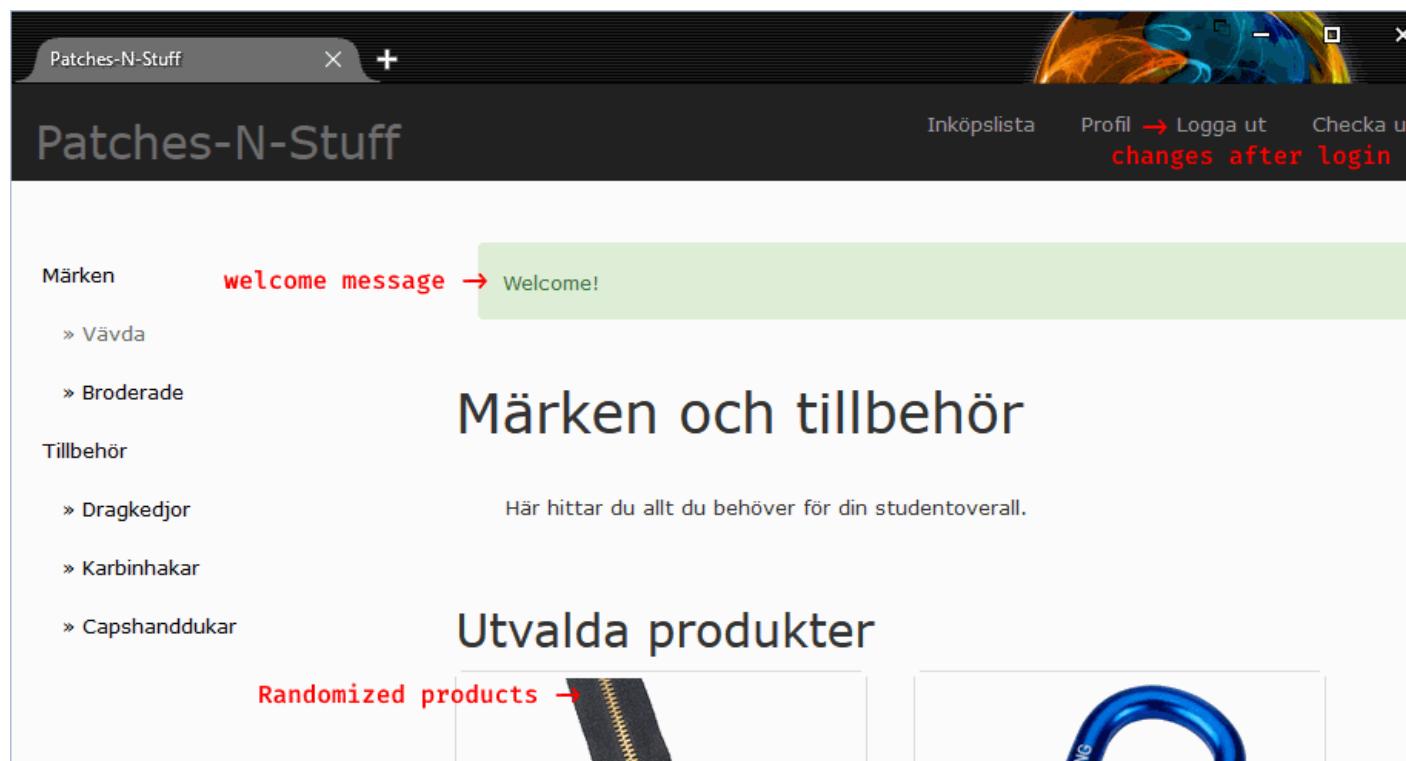


Figure 10: Registration complete

The screenshot shows a profile page for a user named "Some User". The page has a dark header with the title "Patches-N-Stuff". On the left, there's a sidebar with categories like "Märken" and "Tillbehör", each with a list of sub-categories. The main content area displays the user's information: Name ("Namn: Some User"), Person number ("Personnummer: non-
← Filled in profile"), Address ("Adress:"), Email ("E-post: test@mail.com"), and Phone number ("Telefonnummer:"). Below this, there are buttons for "Ändra användarinformation." (Change profile) and "Se tidigare beställningar." (View orders). At the bottom, there's a button for "Välj kundkorg." (Choose cart). The page includes red annotations: "non-
← Filled in profile" next to the person number, "← Change profile" next to the "Ändra" button, and "← view orders" next to the "Se" button.

Figure 11: Profile page

Patches-N-Stuff

Inköplista Profil Logga ut Checka u

Editing Customer

Name
Some User

P nr
123456-7890

Adress
somewhere

Zip
12312

City
nowhere

Email
test@mail.com

Phone nr

Password

Password confirmation

Picture

Update Customer

Tillbaka

[https://d0018e-nikeli.c9users.io/customers/6/edit < \[1/1\]](https://d0018e-nikeli.c9users.io/customers/6/edit < [1/1])

Figure 12: Edit profile

Märken | Patches-N-Stuff X +

Patches-N-Stuff

Inköpsslista Profil Logga ut Checka u

Märken ← Chose a parent category and all children → Märken

» Vävda will render as well →

» Broderade

Tillbehör

» Dragkedjor

» Karbihakar

» Capshanddukar

Sjöslaget '15 - SUS KM

Pris: 10.4:-

Musikhjälpen '16

Pris: 30.0:-

Snorlax

Pris: 5.0:-

Datamärke

Pris: 21.0:-

[https://d0018e-nikeli.c9users.io/category/2 < \[1/1\]](https://d0018e-nikeli.c9users.io/category/2 < [1/1])

Figure 13: Category page

The screenshot shows a product page for a Carlsberg patch. At the top, there's a navigation bar with links for 'Inköplista', 'Profil', 'Logga ut', and 'Checka u...'. Below the navigation, the page title is 'Patches-N-Stuff'.

Märken

- » Vävda
- » Broderade

Tillbehör

- » Dragkedjor
- » Karbinhakar
- » Capshanddukar

Carlsberg

Pris: 60.00kr

Lagerstatus: 13st

Snittbetyg: ★ ★ ★ ★ ★
Antal betyg: 12

Har du spillt en Calle? Ingen fara, med denna capshandduk är det bara att torka upp och hälla tillbaks i glaset.

Lämna omdömme

Grade
[Select dropdown]

Review
[Text input field]

Create Rating

★★★★★ 6 days ago
By: Nick
re you so desperate to fight criminals that you lock yourself in to take them on one at a time ? Look around you. You'll see two councilmen, a union official, couple off-duty cops and a judge. I wouldn't have a second's hesitation of blowing your head off in front of them. Now, that's power you can't buy. That's the power of fear.

★★★★★ 6 days ago
By: nikalas
Let me get this straight. You think that your client, one of the wealthiest, most powerful men in the world is secretly a vigilante who spends his nights beating criminals to a pulp with his bare hands and your plan is to blackmail this person? Good luck. You can swapnot sleeping in a penthouse... for not sleeping in a

[https://d0018e-nikeli.c9users.io/product/8 < \[1/1\]](https://d0018e-nikeli.c9users.io/product/8 < [1/1])

Figure 14: Product page

The screenshot shows a shopping cart interface for 'Patches-N-Stuff'. At the top, there's a navigation bar with links for 'Inköpsslista', 'Profil', 'Logga ut', and 'Checka ut'. Below the navigation, the page title 'Patches-N-Stuff' is displayed. On the left, there's a sidebar with categories like 'Märken' (Brands) and 'Tillbehör' (Accessories), each with sub-categories such as 'Vävda', 'Broderade', 'Dragkedjor', 'Karbinkakar', and 'Capshanddukar'. The main content area shows a table of items in the cart:

	Produkt	Antal	Pris			
» Vävda	Svart metall	2 (200)	40.0 (20.0)	Lägg till en	Ta bort en	Ta bort alla
» Broderade	Billig stålhake	1 (299)	4.99 (4.99)	Lägg till en	Ta bort en	Ta bort alla
Tillbehör	Blå karbihake	1 (100)	12.0 (12.0)	Lägg till en	Ta bort en	Ta bort alla
» Dragkedjor	Grön karbihake	3 (100)	36.0 (12.0)	Lägg till en	Ta bort en	Ta bort alla
» Karbihakar						
» Capshanddukar						

Totalt: 100.66kr

At the bottom, there are two buttons: 'Kassa' and 'Checkout'.

Figure 15: Shopping cart

Lägg order | Patches-N-Stuff X +

Patches-N-Stuff

Inköpsslista Profil Logga ut Checka u

Märken

- » Vävda
- » Broderade

Tillbehör

- » Dragkedjor
- » Karbinhakar
- » Capshanddukar

Lägg bestälning

Produkt	Antal	Pris	Totalt
Svart metall	2	40.0	
Billig stålhake	1	4.99	
Blå karbinhake	1	12.0	
Grön karbinhake	3	36.0	
			100.66kr

Fakturerings och leveransadress

Adress

Zip

City

← Automatically sourced from user profile if provided, but can be changed if user so wishes for every order.

Produkt Antal Pris

Figure 16: Order page

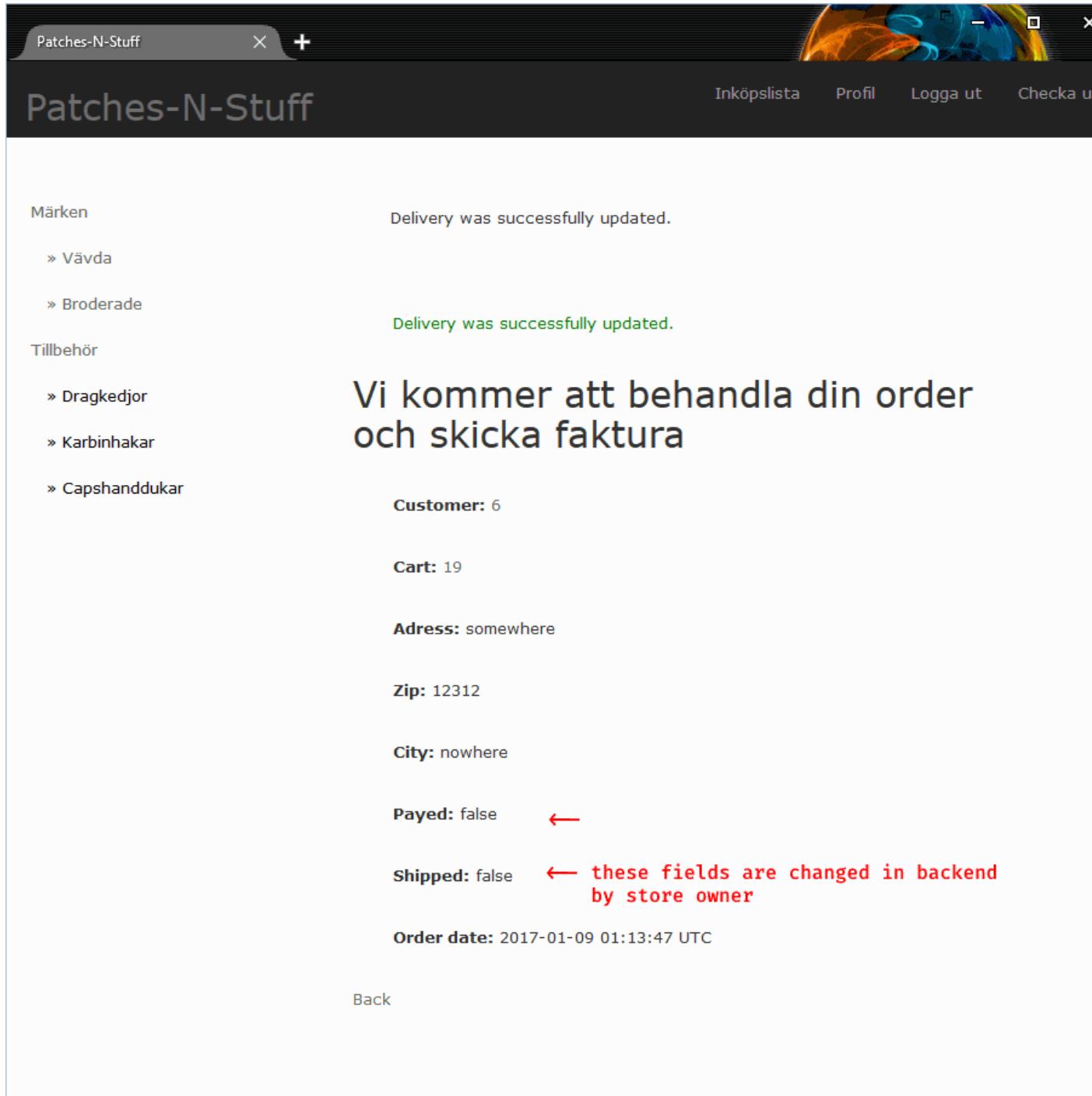


Figure 17: Order confirmation

	Ordernr	Datum	Summa	Betald	Skickad	Adress	
Tillbehör	17	2017-01-09	100.66	false	false	somewhere 12312 nowhere	Produkter
	18	2017-01-09	424.33	false	false	somewhere else 0 neverland	Produkter

Figure 18: Orders history

Märken

- » Vävda
- » Broderade

Tillbehör

- » Dragkedjor
- » Karbinhakar
- » Capshanddukar

Carlsberg

Pris: 60.00kr

Lagerstatus: 13st

Snittbetyg: ★ ★ ★ ★ ★
Antal betyg: 12

Har du spillt en Calle? Ingen fara, med denna capshandduk är det bara att torka upp och hälla tillbaks i glaset.

Lämna omdömme

Grade

Review

Create Rating

← Grade can be submitted without review, but not the other way around

★★★★★ 6 days ago

By: Nick
re you so desperate to fight criminals that you lock yourself in to take them on one at a time ? Look around you. You'll see two councilmen, a union official, couple off-duty cops and a judge. I wouldn't have a second's hesitation of blowing your head off in front of them. Now, that's power you can't buy. That's the power of fear.

★★★★★ 6 days ago

By: nikalas
Let me get this straight. You think that your client, one of the wealthiest, most powerful men in the world is secretly a vigilante who spends his nights beating criminals to a pulp with his bare hands and your plan is to blackmail this person? Good luck. You can swapnot sleeping in a penthouse... for not sleeping in a

Only shows ratings that includes reviews →

[https://d0018e-nikeli.c9users.io/product/8 < \[1/1\]](https://d0018e-nikeli.c9users.io/product/8 < [1/1])

Figure 19: User reviews

The screenshot shows a user profile page for 'Carlsberg | Patches-N-Stuff'. The main content area displays two reviews:

- Märken**: A review by 'Nick' from 6 days ago, rated 5 stars, stating: "side. Now I'm always smiling." Below it are links to categories: » Vävda, » Broderade.
- Tillbehör**: A review by 'nikalas' from 5 days ago, rated 3 stars, stating: "gillar den fortfarande inte". Below it are links to categories: » Dragkedjor, » Karbinhakar, » Capshanddukar.

A red annotation on the left side of the reviews says: "User can change or remove → [edit icon] [trash icon]".

Figure 20: Edit comment

The screenshot shows the admin interface for 'Admin | Patches-N-Stuff'. The top navigation bar includes 'Inköpsslista', 'Profil', 'Logga ut', and 'Checka u...'. The main content area has a heading 'Admin' and a message: 'Det här är indexsidan för admins. Välkommen!'. On the left, there's a sidebar with links: 'Märken' (» Vävda, » Broderade), 'Tillbehör' (» Dragkedjor, » Karbinhakar, » Capshanddukar). To the right, a list of admin rights is shown:

- Products
- Carts
- Categories
- Customers
- Deliveries
- Sales

Red annotations provide feedback: 'Changes to indicate role (if is_admin?)' points to the 'Changes to indicate role' part of the URL; '← gives admin rights to edit' points to the 'Sales' item; and '← not implemented' points to the strikethrough of 'Sales'.

Figure 21: Admin interface

The screenshot shows a web browser window with several tabs open. The active tab is for 'Patches-N-Stuff' at localhost:3000/carts/88. The page displays a shopping cart with the following items:

Produkt	Antal	Pris
Datamärke	1 (420)	21.0 (21.0)

Below the table, the total price is shown as **Totalt: 22.73kr**. At the bottom of the cart area, there is a button labeled **Kassa**.

Figure 22: Go to checkout

The screenshot shows a web browser window with the following details:

- Address Bar:** localhost:3000/order/48
- Title Bar:** Lägg beställning | Patches-N-Stuff
- Header:** Patches-N-Stuff (with a logo), Inköpslista, Profil, Logga ut, Checka
- Left Sidebar (Märken):**
 - » Vävda
 - » Broderade
- Left Sidebar (Tillbehör):**
 - » Dragkedjor
 - » Karbinhakar
 - » Capshanddukar
- Main Content:**

Lägg beställning

Produkt	Antal	Pris	Totalt
Datamärke	1	21.0	22.73kr

Fakturerings och leveransadress

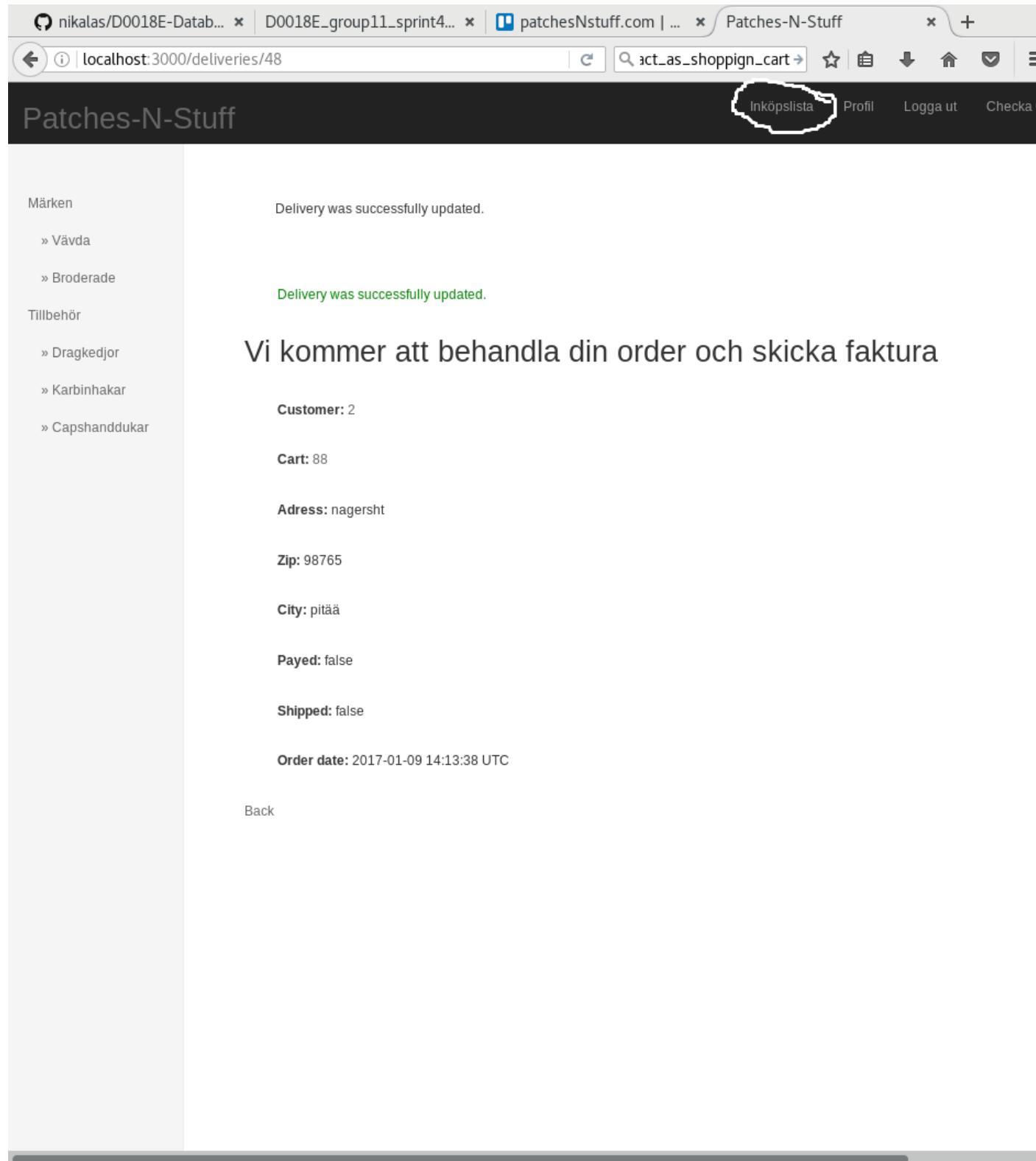
Adress
nagersht

Zip
98765

City
pitää

Update Delivery (This button is highlighted with a red oval)

Figure 23: Complete order

**Figure 24:** Go to cart

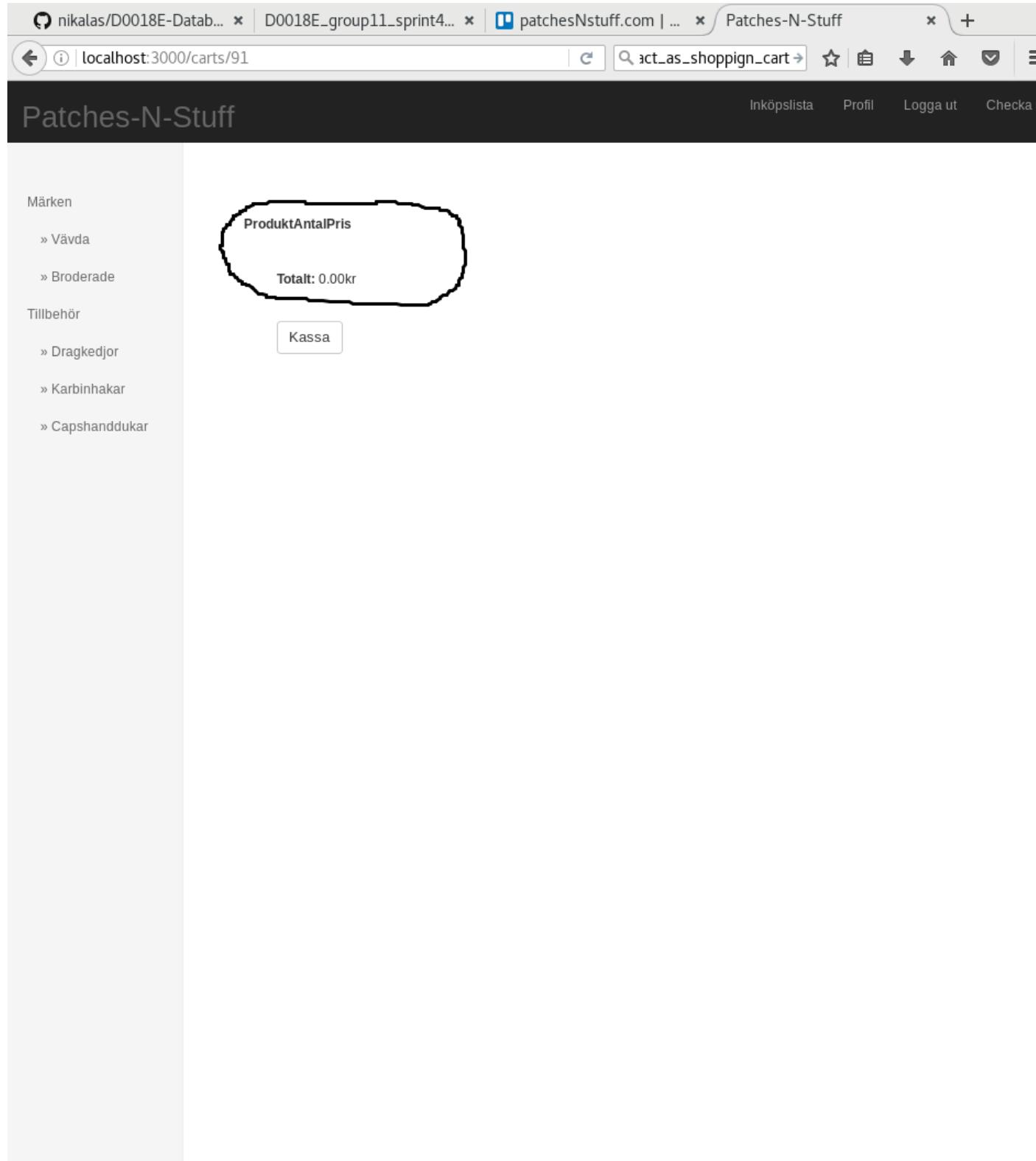


Figure 25: It is empty because a new one was made after the order was placed

The screenshot shows a web browser window with several tabs open. The active tab is for 'Patches-N-Stuff' at 'localhost:3000/carts/88'. The page title is 'Patches-N-Stuff'. In the top right corner, there are links for 'Inköpsslista', 'Profil', 'Logga ut', and 'Checka'. On the left, a sidebar lists categories: 'Märken' with '» Vävda' and '» Broderade'; and 'Tillbehör' with '» Dragkedjor', '» Karbinhakar', and '» Capshanddukar'. The main content area shows a table for the shopping cart:

Produkt	Antal	Pris
Datamärke	1 (420)	21.0 (21.0)

Totalt: 22.73kr

A large, irregular black redaction box covers the product image area.

Figure 26: viewing the old cart from the products of the placed order does not allow for another order to be placed