

Tallinna University of Technology

# **Insurance Application**

Web Applications project proposal

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## **AUTHOR'S DECLARATION**

I hereby certify that I am the sole author of this report. All the used materials, references to the literature and the work of others have been referred to. This thesis has not been presented for examination anywhere else.

Signature:  
Mathias Orro  
23.02.2024

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## **INTRODUCTION**

The project aims to create a platform for insurance brokers. The project is driven by a practical request from a real client. The insurance broker is not satisfied with the current solution and would like the system to be more flexible, to carry out several operations automatically and to reduce the possibility of errors and the interruption of contracts due to customer inattention.

Since the scope of this project is larger than the requirements of this course, we will first tackle the core part of the web application. In the future, this system can be extended to end-users (policyholders) and as a service to other insurance brokers.

The project should address the following issues - batch modification of data (e.g. payment date of already generated invoices), overview display of contracts about to expire, sending notifications to the customer, possibility to change the template of notifications sent to the customer, generation of a single invoice based on all contracts of the customer.

## **1. OVERVIEW**

The client wants to have a functioning system, mainly for the sale of motor insurance and comprehensive insurance. But the system has to be structured in such a way that it can be extended to other types of insurance in the future. At the moment the system is designed for Estonia, but it must also be usable internationally. The insurance is sold to the customer (policyholder) by the intermediary (broker), the insurance policy is issued by the insurer (insurance company).

## 2. ANALYSIS

Although we are currently creating an application for brokers only, we also need to consider the possibility that end users will be able to use the system in the future. The end user could be a private individual or a company. Each client and broker will have one or more administrator users who will manage the rights of the users of that client. The first user created is automatically granted administrator rights. Users and insurance agents have the right to draw up the client's insurance contracts (policy), monitor the insurance in force, payment schedules, etc.

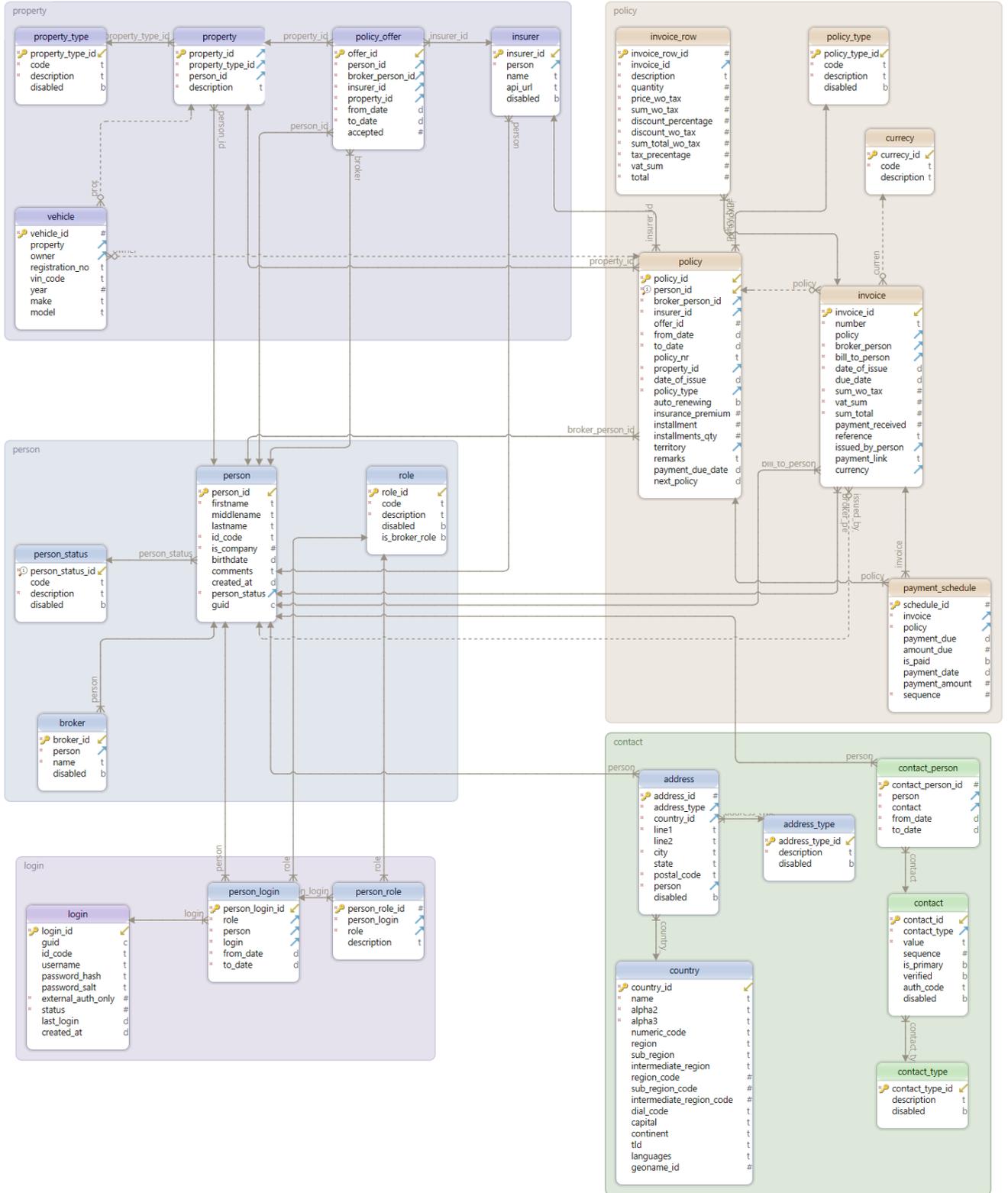
In the case of a brokerage firm, the users are the insurers, who have access to their own policies or to the policies of the whole firm, according to the rules set by the firm. Each user is assigned a set of possible roles which determine the rights of that user.

The insurance policy is issued by the insurer and is not created or held in our system, but is collected by the broker.

The application must enable the broker to do the following:

- 1) To obtain an insurance quote, the intermediary must enter the registration number or VIN code of the car you want.
- 2) On this basis, enquiries are made with the insurance companies and offers are sent.
- 3) The options are displayed to the intermediary, who can choose the one that suits him and, if necessary, specify the optional parameters (deductible, payment schedule, etc.).
- 4) If the customer accepts the offer, he confirms the choice made.
- 5) The broker issues an invoice for payment.
- 6) If the payment conditions are met, the broker issues the insurance policy.
  - a. If the payment is in several instalments, the system will issue periodic invoices.
- 7) If desired, the system will notify when the policy is about to expire.
- 8) The broker can only see his own policies or all policies of the brokerage firm if set so.
- 9) For companies, it is possible to consolidate payments from different policies into one account.

### 3. ERD SCHEMA



## 4. FIGURES

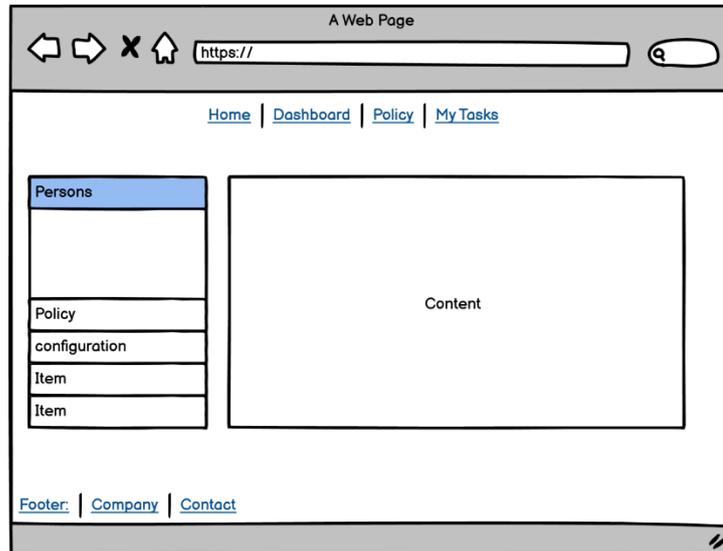


Figure 1: General layout

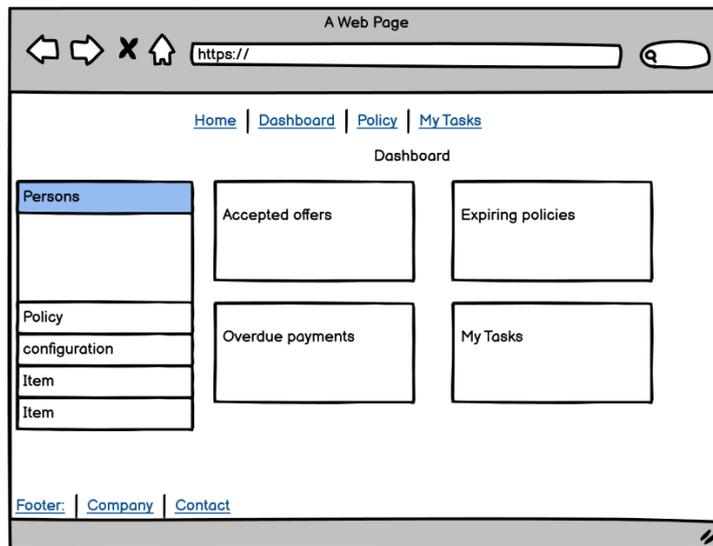


Figure 2: Dashboard

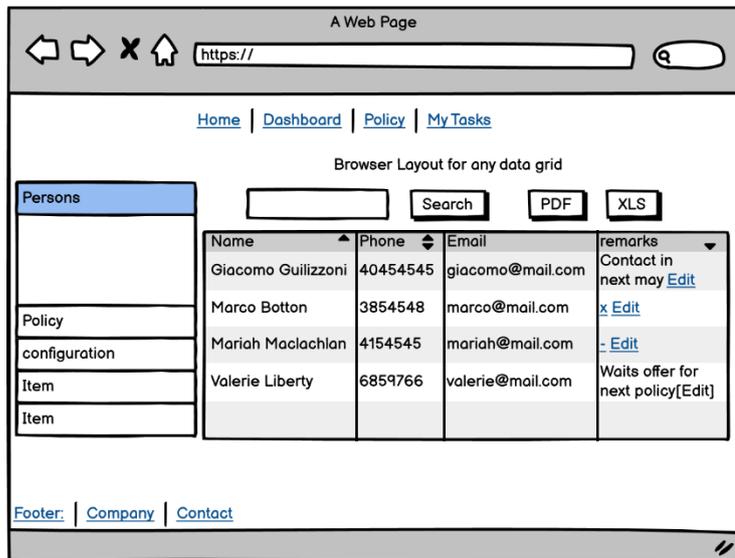


Figure 3: General browser screen

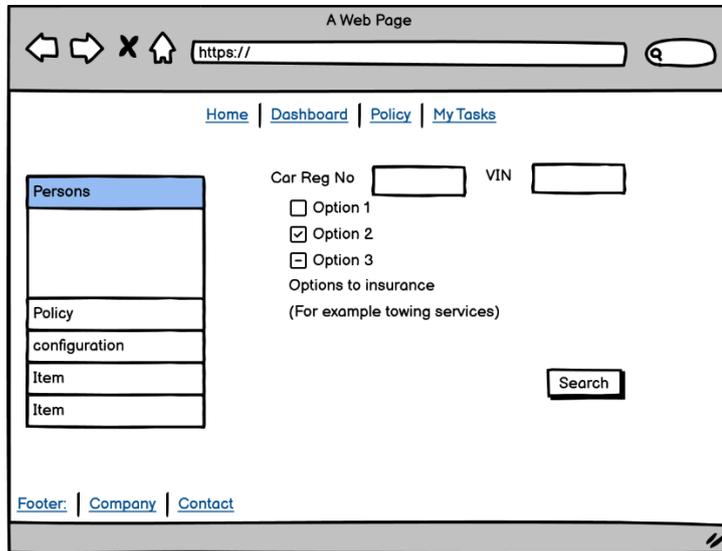


Figure 4: Request offers for car

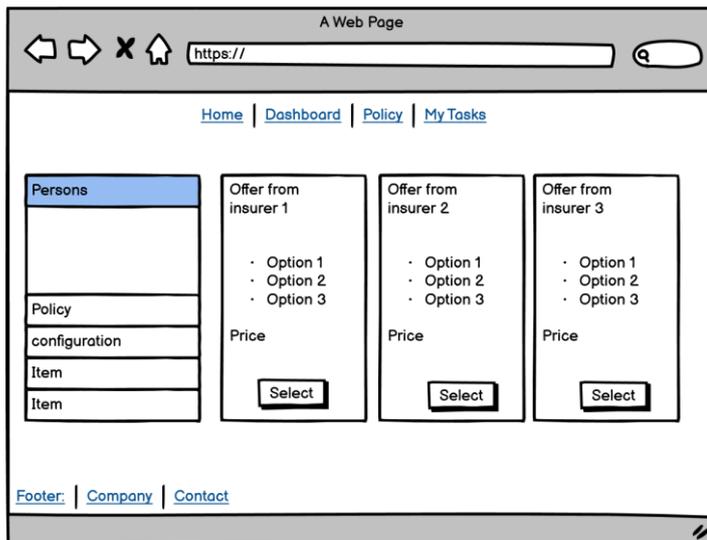


Figure 5: Select offer

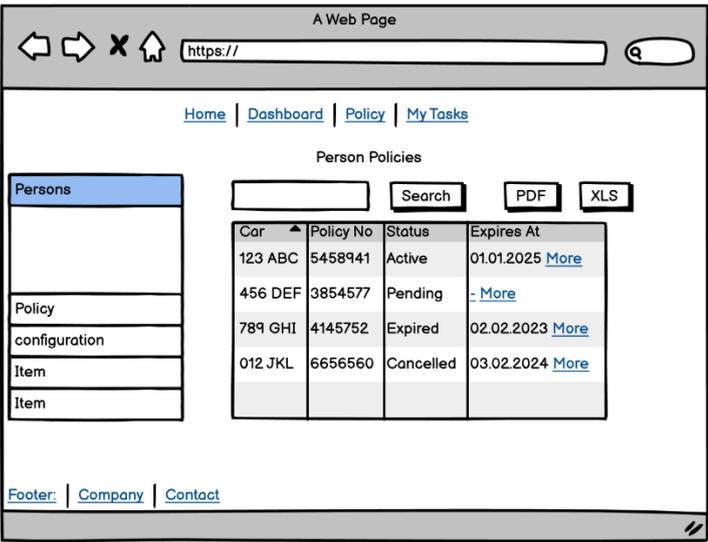


Figure 6: Person policies

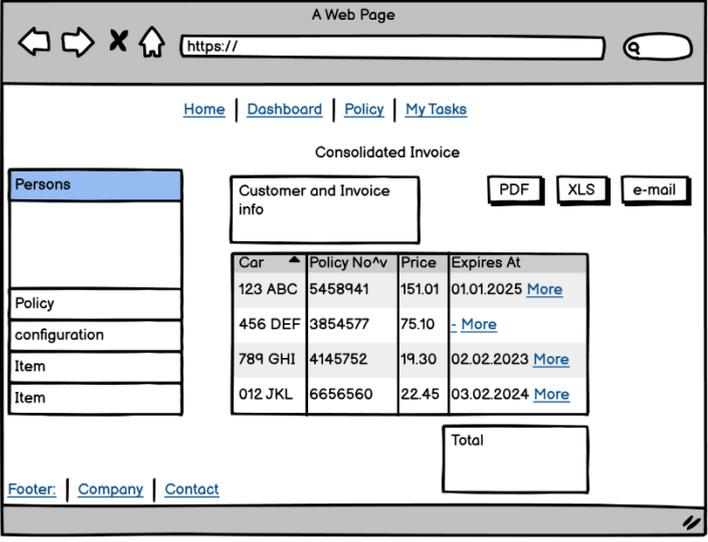


Figure 7: Consolidated invoice

## **SUMMARY**

In the course of the project, we created an ERD model based on the data collected during the task definition using DbSchema software. From the model we created classes corresponding to the entities. Using the Entity Framework we created the database. Using scaffolding, we created CRUD controllers. For the database we used MS SQL server. User, Role and UserRole are provided by the identity framework.

## USED SOURCES

- (1) „ASP.NET Identity in MVC - User Accounts and Roles out of the box“, tutorialsEU – C#, <<https://www.youtube.com/watch?v=MxZ6PYARGJ4/>> (23.02.2024)
- (2) „ASP.NET User Roles - Create and Assign Roles for AUTHORIZATION!“, tutorialsEU – C#, <<https://www.youtube.com/watch?v=Y6DCP-yH-9Q>> (23.02.2024)
- (3) „Entity Framework Core Code First: Introduction, Best Practices, Repository Pattern, Clean Architecture“, Bob Code, <<https://medium.com/@codebob75/entity-framework-core-code-first-introduction-best-practices-repository-pattern-clean-22b6152bcb81/>> (23.02.2024)
- (4) „Balsamiq Wireframes for Desktop“, Balsamiq Studios, <<https://balsamiq.com/wireframes/desktop/#>> (23.02.2023)

# EXTRAS

## 1) Example of motor insurance policy:

LIIKLUSKINDLUSTUS		Poliis													
Käesolev kindlustuspoliis tõendab liikluskindlustuse lepingu sõlmimist (VÕS prg 434 lg1)		Poliisi nr.: <b>C0050482138</b>													
Kindlustusandja:		AAS "BTA Baltic Insurance Company" Eesti filiaal (edaspidi BTA)													
Aadress: Löötsa 2B, 11415 TALLINN, EESTI		Reg kood: 11223507													
Kindlustusvõtja:		Kliendi nimi: _____ Isikukood: _____													
Omanik:		Kliendi nimi: _____ Isikukood: _____													
Kindlustatav sõiduk:		Registreerimisnumber													
48		Mark ja mudel													
Tehasetähis (VIN)		CHRYSLER TOWN & COUNTRY													
2C4		Kasutusala													
		Sõiduautod v.a taksod ja rendiauto													
Kindlustusperiood:		Poliis väljastatud:													
Alates: 18.08.2020		Kuupäev: 10.08.2020													
Kell 00:00		Kell 11:20													
Kuni: 17.08.2021		Kell 23:59													
Kindlustusmakse:		Liikluskindlustuse makse: 108.43EUR													
Üldsätted:		1. Tegemist on automaatselt mittepikeneva liikluskindlustuse lepinguga (edaspidi Leping). 2. Lepingu sõlmimise kohustus tuleneb liikluskindlustuse seadusest, mille tulemusena on kindlustatud liikluskahju põhjustanud sõiduki valdaja tsiviilvastutus. 3. Kindlustuskaitse kehtib Euroopa Majanduspiirkonna lepinguriikides ja "rohelistel kaardil" märgitud teistes riikides. 4. Kahjujuhtumite ning sellest tulenevate kahjunõuete ja selle hüvitamisele kohaldatakse kahjujuhtumit toimumiskoha riigi õigust. 5. Lepingu lõpetamine toimub liikluskindlustuse seaduses sätestatud alustel ja korras.													
Kindlustustingimused:		1. Liikluskindlustuse tingimused EE-16 2. Kindlustuse üldtingimused nr GC 2019.0 3. Liikluskindlustuse seadus 4. BTA Autoabi kindlustustingimused nr EE-15, kinnitatud 07.08.2014 BTA juhatuse otsusega nr LV1_0002/02-03-03-2014-99													
Kindlustusmakse koos BTA Autoabiga:		BTA Autoabi kindlustus kehtib üksnes 12 kuulise perioodiga liikluskindlustuse lepingu korral, kogu kindlustusperioodi vältel.													
Makse kokku:		<table border="1"><thead><tr><th>Nº</th><th>Nimetus</th><th>Summa (EUR)</th></tr></thead><tbody><tr><td>1.</td><td>Liikluskindlustuse makse</td><td>108.43</td></tr><tr><td>2.</td><td>BTA Autoabi</td><td>15.18</td></tr><tr><td colspan="2">Summa kokku:</td><td>123.61 EUR</td></tr></tbody></table>		Nº	Nimetus	Summa (EUR)	1.	Liikluskindlustuse makse	108.43	2.	BTA Autoabi	15.18	Summa kokku:		123.61 EUR
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1.	Liikluskindlustuse makse	108.43													
2.	BTA Autoabi	15.18													
Summa kokku:		123.61 EUR													
Teadete edastamine ja muu info:		1. Kahju põhjustaja ja kahjustatud isik peavad kindlustusjuhtumist viivitamata teavitama kas kahju põhjustaja kindlustusandjat või kahjustatud isiku kindlustusandjat. AAS "BTA Baltic Insurance Company" Eesti Filiaal: telefon +372 5 68 68 668 või e-post kahjud@bta.ee. 2. Kindlustusvõtjal on õigus esitada kaebusi kindlustusandja tegevuse kohta Finantsinspeksioonile aadressil <b>Sakala 4 15030 Tallinn</b> . 3. Kindlustuslepingu suhtes kuulub kohaldamisele Eesti Vabariigi õigus ja kohtualluvus. 4. Kindlustusmakse tasumisega kinnitan, et olen tutvunud ja nõustunud kindlustustingimustega, mis on saadaval BTA kodulehel <a href="http://www.bta.ee">www.bta.ee</a> Poliisi väljastamise kuupäev, kellaaeg ja koht: 10.08.2020., 11:20, Tallinn.													
Kindlustusandja esindaja:		Kindlustuslepingu müüja:													
Kindlustusandja: AAS "BTA Baltic Insurance Company" Eesti filiaal		Firma nimi: ULTIMA KINDLUSTUSMAAKLER OÜ													
Ees- ja perekonnanimi: _____		Ees- ja perekonnanimi: T													
Allkiri: _____		Kontaktandmed: _____													

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Kahjust teatage BTA-le esimesel võimalusel tel +372 5 6868 668 või kahjud@bta.ee, kuid mitte hiljem kui 5 tööpäeva jooksul.

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