# Content

# 1. User interface requirements

## 1.1. Metaphor requirements of the subject area

- Bulk product — those in the weighed product section are no longer than three centimeters and food products smaller than 4 cubic centimeters.
- Bulk product machine — a machine that holds, weighs, counts and delivers bulk products.
- Employee — is a person who uses an identification card.
- A user is a person who uses a BPA task to buy BP.

## 1.2. Tasks are formulated

### 1.2.1. Buy a product

1. If the user wants, he chooses a new language — Lithuanian, Russian or English (Window 1).
2. The user selects a product from the product table (Window 1; number of choices depends on the number of BPA sections);
3. Another table opens, where the user can choose the quantity or the price. After marking the prices or the quantity field in the numeric keypad on the right requires the exact value to be entered (Window 2).
4. After confirming the selection, a dialog box appears showing the name of the product, weight and price. In this window, the user confirms or rejects his choice (Window 3).

### 1.2.2. Change the price

1. When the employee inserts the card into the BPA, a window appears in which he chooses to change the price (Window 4).
2. In a new window, the employee selects a product from the product table (Window 5).
3. In a new window, the employee enters a new price (Window 6).
4. After confirming the selection, a dialog box appears showing the name of the product and new price. In this window, the employee confirms or rejects his choice (Window 3).

### 1.2.3. Change name

1. When the employee inserts the card into the BPA, a window appears in which he chooses to change the name (Window 4).
2. In a new window, the employee selects a product from the product table (Window 5).
3. In a new window, the employee writes a new name in Lithuanian, Russian and English (Window 7; the keyboard changes when the language is selected).
4. After confirming the selection, a dialog box appears showing the new product title. In this window, the employee confirms or rejects his choice (Window 3).

### 1.2.4. Clear or refill the BP section

1. When the employee inserts the card into the BPA, a window appears in which he chooses to clear or refill the BPA section (Window 4). All departments open.

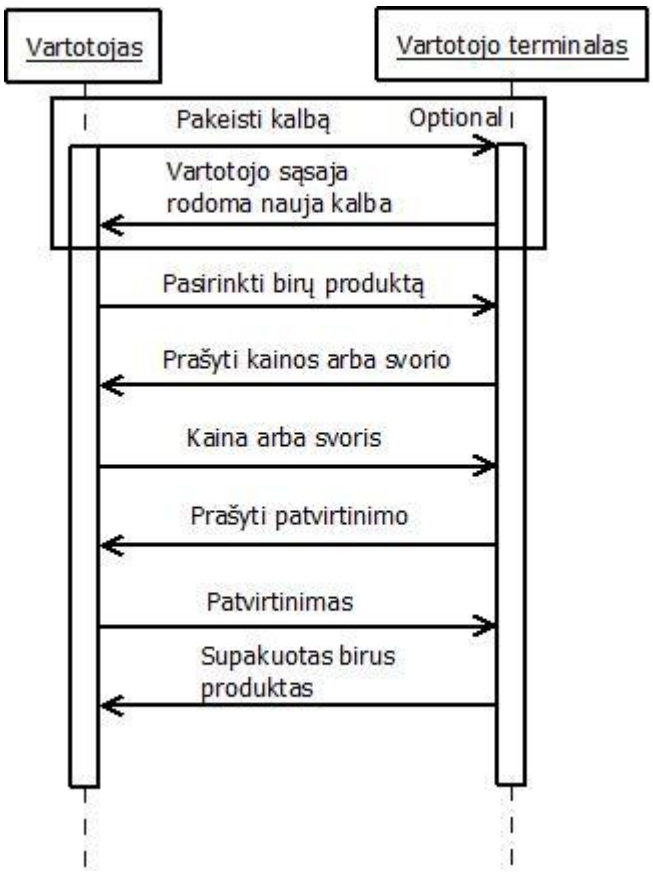
2. After completing or clearing the sections, choose to complete the work and all sections in the window that appears closes (Window 8).

You can return to the previous window from each window, except windows 1, 2 and 8.

## 1.3. Language requirements for task formulation

Tasks must be formulated using windows, dialog boxes, numeric and alphanumeric keyboard.

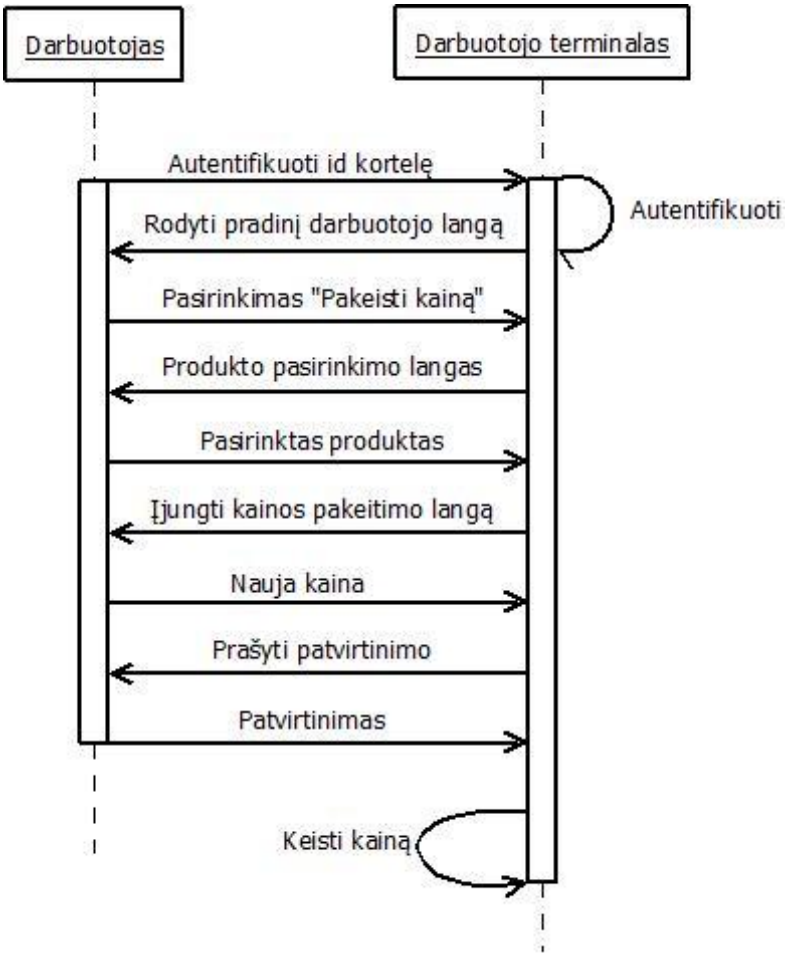
## 1.4. Requirements for the method (protocol) of formulating tasks




UML Sequence Diagram 1 Product purchase

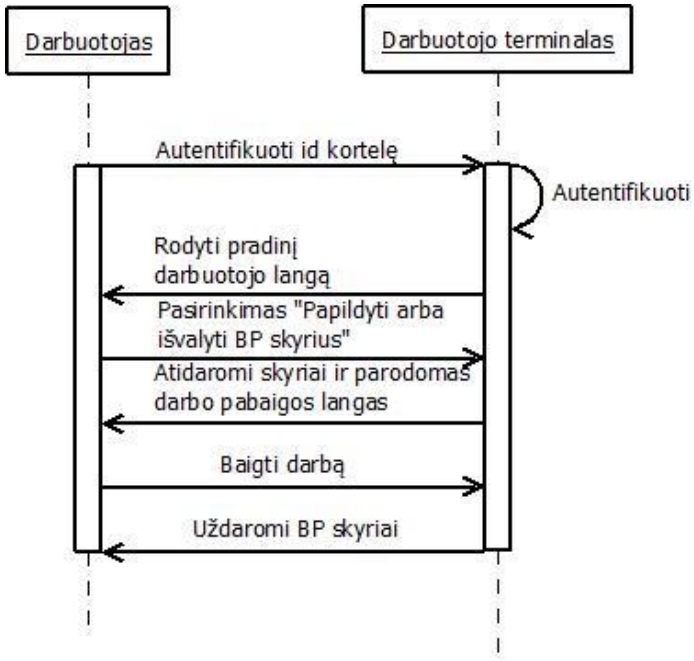
The user, if necessary, first selects the desired language. Then the bulk product is selected. In the next window, the user needs to enter either the price or the product (both cannot be entered). After that is shown a confirmation message stating the purchased product, product weight and price.

After confirmation of the purchase, the bulk product is packaged and provided to the consumer.



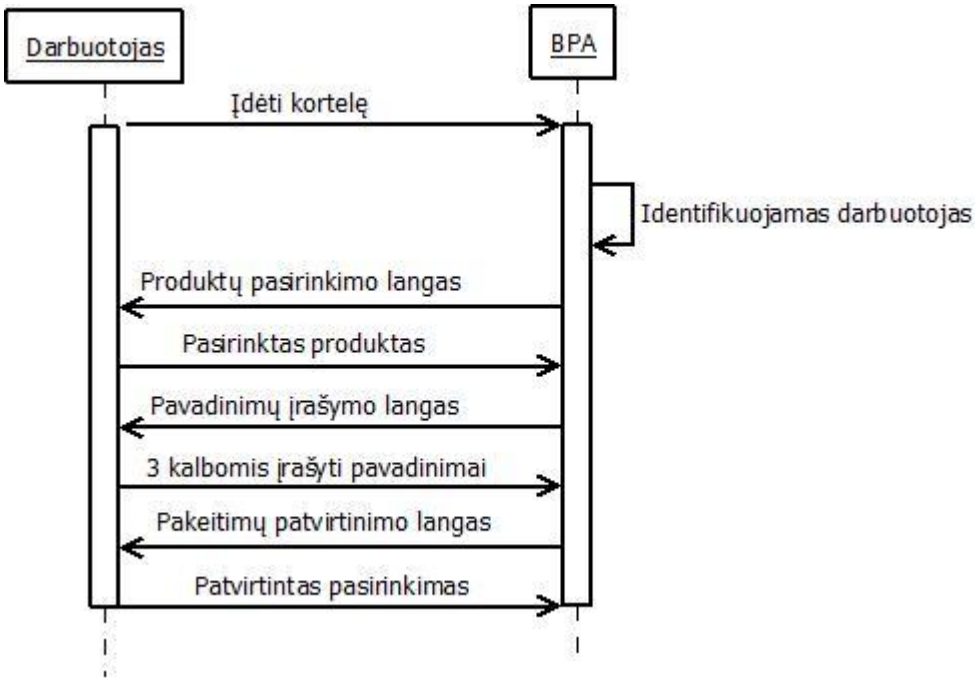

UML Sequence Diagram 2 Price change

The employee inserts the identification card. BPA authenticates the employee and displays the initial window (Window 4, see the appendix), where you choose to change the price. In the product selection window (Window 5) the employee selects a bulk product whose price is to be changed. In a new window (Window 6) a new price is entered. The confirmation window (Window 3) then confirms the change and price changes.




UML Sequence Diagram 3 Filling or Clearing BPA Sections

The employee inserts the identification card. BPA authenticates the employee and displays the initial window (Window 4, see the appendix), where you choose to fill or clean the BPA compartment. End of work occurs window (Window 8). BPA compartments are opened and an employee cleans and refills the compartments. Having done this the end of work button is pressed, which closes the BPA sections.




UML Sequence Diagram 4 Rename

The employee inserts the identification card. BPA authenticates the employee and displays the initial window (Window 4, see the appendix), where you choose to change the name. Then selects the product (Window 5). In the next window, enter names in Lithuanian, Russian and English. In the confirmation window (Window 3) the employee approves the changes.

### 1.5. Interface consistency and standardization requirements

The individual standard can be seen in the attachment.

## 1.6. Notification wording requirements

The text in the confirmation windows must not be longer than 512 characters and written in the selected language (the alphabet of that language is used).

## 1.7. Interface customization requirements

BPA has no interface customization requirements.

# 2. Functional requirements of the program system

## 2.1. Subject requirements

| No. | Requirement | Initial data | The result |
|---|---|---|---|
| 1 | Calculate the price of the desired amount of BP | Desired BP and its amount | Calculated price |
| 2 | Show the calculated price to the customer | Calculated price | Price and BP are displayed quantity to the customer |
| 3 | Add the required amount of the desired product to the bag | The desired BP is calculated the price of the desired quantity | Wanted item wanted quantity added to the bag |
| 4 | Weigh the bag with already added BP and count its actual price (previously displayed price was preliminary because the machine cannot load completely of exact BP amount) | Bag with BP | Weighed bag with BP and calculated its price, it is shown to the customer |
| 5 | Print a price tag and stick it on bag with BP | Weighed bag with BP and its price is calculated | Bag with BP and sealed with a label with the price |
| 6 | Seal the bag | Bag (unsealed) with BP and sealed price tag | Sealed bag with BP and sealed label with price |
| 7 | Provide the desired amount of BP or so in the bag of the product, as much as the customer wants the price | Sealed bag with I have already added BP and sealed price | The customer has a bag with desired BP |
| 8 | Calculate the amount of the desired product according to the price entered by the customer | Desired BP and price, for which you want to get it | The desired BP is calculated quantity at the desired price |
| 9 | Show the calculated quantity to the customer | The desired BP is calculated quantity at the desired price | Price and BP are displayed quantity to the customer |
| 10 | Add the desired BP to the bag at the desired price | The desired BP is calculated quantity for the price entered | Quantity of the desired item for desired price added to bag |
| 11 | Change the price of the desired BP | Worker authenticated | Changed the desired BP the price |
| 12 | Change the BP section name | Worker identified and department chosen | Replaced by BP department title |

## 2.2. Auxiliary requirements

| No. | Requirement | Initial data | The result |
|---|---|---|---|
| 1 | Authenticate the employee | The employee has placed card to BPA | Worker authenticated and can change prices |
| 2 | Open the appliance compartment to clean it or to supplement | Worker authenticated and selected that the device sections will be cleared or additional | Code can be entered for opening the device and it open |
| 3 | Turn on the device | The device is switched off, the employee has the key from the power button | The device is turned on |
| 4 | Change the language in which BPA displays messages to the user. | Product displayed selection window | The language has been changed |

# 3. Non-functional application system requirements

## 3.1. Internal interface requirements

### 3.1.1. Requirements for using the operating system

A computer with a Linux operating system will be used to implement the BPA management system, which will run the program that controls the BPA itself. The app will need to work on all platforms to not crash no problem if the computer's operating system is changed.

### 3.1.2. Interaction with databases

There will be no databases on the computer running the BPA. Prices and replenishment dates will be saved program in the computer's internal memory. There will be no interaction with external databases.

### 3.1.3. Document exchange requirements

Prices and replenishment dates will be able to be exported in CSV format.

### 3.1.4. Requirements for working in computer networks

There will be no interaction with other computer networks.

### 3.1.5. Interoperability requirements with other applications

There are no requirements because the BPA software must not be dependent on other software.

### 3.1.6. Programming environment requirements

There are no programming environment requirements.

## 3.2. Performance requirements

### 3.2.1. Accuracy requirements

#### *3.2.1.1. Imaging accuracy requirements*

- The amount of bulk product must be entered and displayed to the nearest gram.
- Price must be entered and displayed to the nearest cent.
- The product replenishment date must be displayed in Lithuanian format, ie yyyy—mm—dd, for example 2011-01-20.
- The name of the bulk product must not exceed 50 characters.

#### *3.2.1.2. Calculation accuracy requirements*

-The machine must provide the amount of BP with an error of no more than 5 grams.

- If the price for which BP is to be obtained has been entered, then the error is also applied to the weight which is calculated and displayed to the customer instead of the entered price.
- When weighing BP, the machine must subtract the cost of the bag.

#### 3.2.2. Reliability requirements

- The system must work without leaks for half a year.
- A maximum of 2 eruptions per year may occur.

#### 3.2.3. Robustness requirements

**In case of power failure:**

A constant voltage source must be connected to the BPA. If the power goes out to the device when filling products, it needs to complete the work using battery power and finish the work turn off If the power goes out while the machine is doing nothing, it should just turn off, too using battery power. When the electricity comes on, the employee of the hall, who has the key to power button, should be able to turn on the machine.

#### 3.2.4. Performance requirements

- BPA can take 20 seconds at most when pouring and weighing the product, ie it will be used up a maximum of 20 seconds of computer work.
- One computer can serve a maximum of 3 BP issuing terminals.

### 3.3. Installation requirements

#### 3.3.1. Preparation requirements

The contractor must enable BPA and install all necessary software for the computer he uses equipment.

#### 3.3.2. Installation requirements

There are no installation requirements, because whoever connects the device will also install all the necessary software equipment.

#### 3.3.3. Initial database build requirements

- The number of BP sections is entered.
- There is no need to import the current BP data into the machine as it is not relevant.

### 3.3.4. System absorbability requirements

- Contractors must prepare instructions for the use of BPA both for employees who will fill the BPA and will adjust product prices, both for buyers who will use BPA.
- Once the BPA is in place, all employees who will fill the BPA and adjust product prices must be present the instructions for use of BPA intended for familiarization with employees. This instruction must be for them always available so that if there is any uncertainty about how to use the BPA, the employee can do so eliminate ambiguities.
- The BPA user manual for buyers (apparatus users) must be printed in large print and hung in a prominent place next to the BPA.
- A trained employee of the hall will be able to help buyers if they have any questions.

## 3.4. Service and maintenance requirements

To service and maintain BPA, i.e. to eliminate technical and software malfunctions, the contractor undertakes.

## 3.5. Reproducibility requirements

The developers of BPA can implement BPA in other companies as it is their intellectual property.

## 3.6. Security requirements

The employee supervising the BPA logs in with an identification card.

## 3.7. Legal requirements

The inside of the box used to store BP must not come into contact with consumers.

BPA will not store any information about the privates of those who use and maintain it data.

## 4. Glossary of terms

1.**BP**—bulk product.

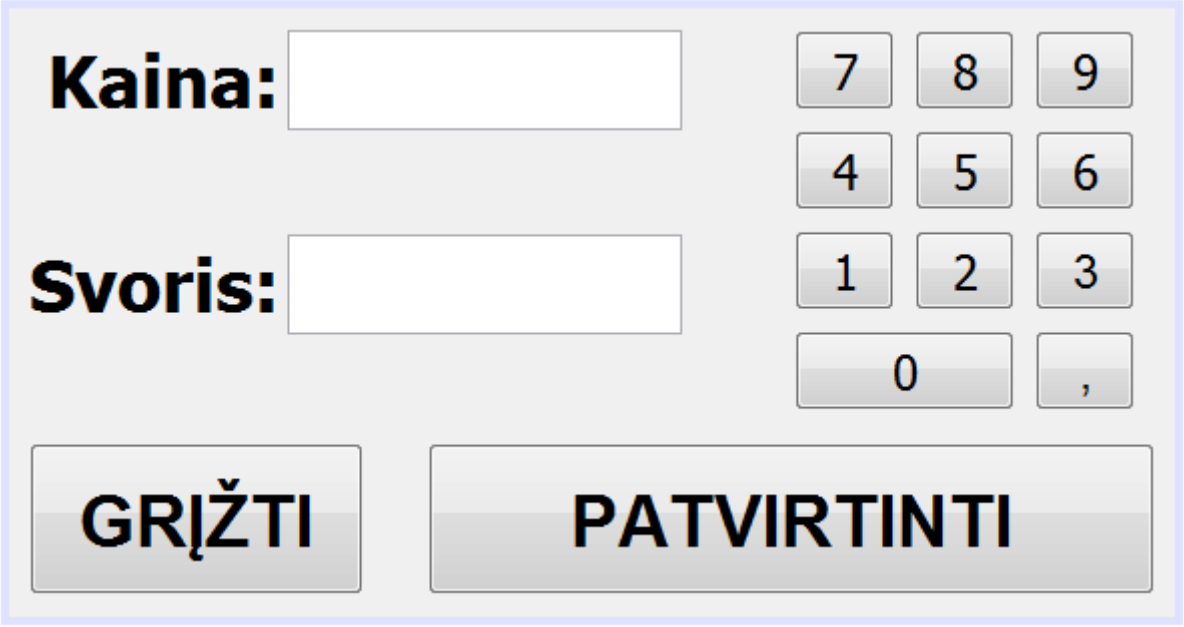
2.**BPA**—bulk product machine.

# 5. Appendix

## 5.1. Initial user window (Window 1)

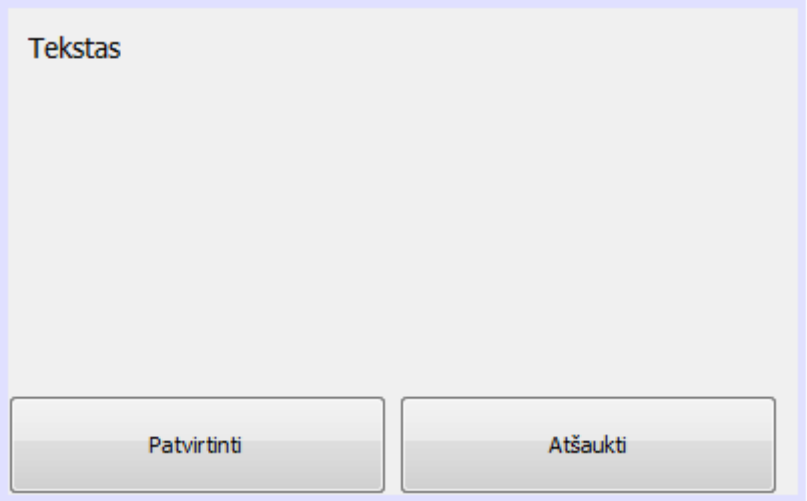

Window 1 The initial user window

## 5.2. Bulk product purchase window (Window 2)



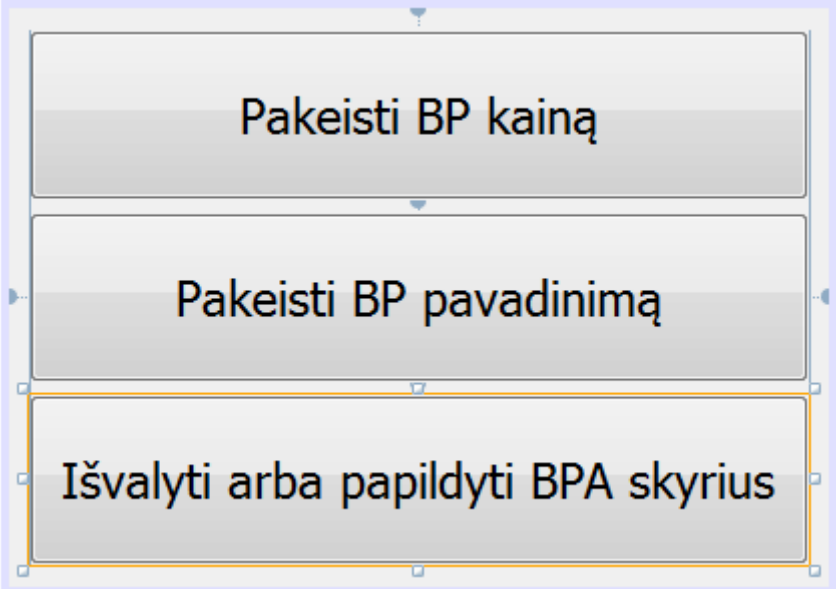

Window 2 Bulk product purchase window

## 5.3. Confirmation window (Window 3)



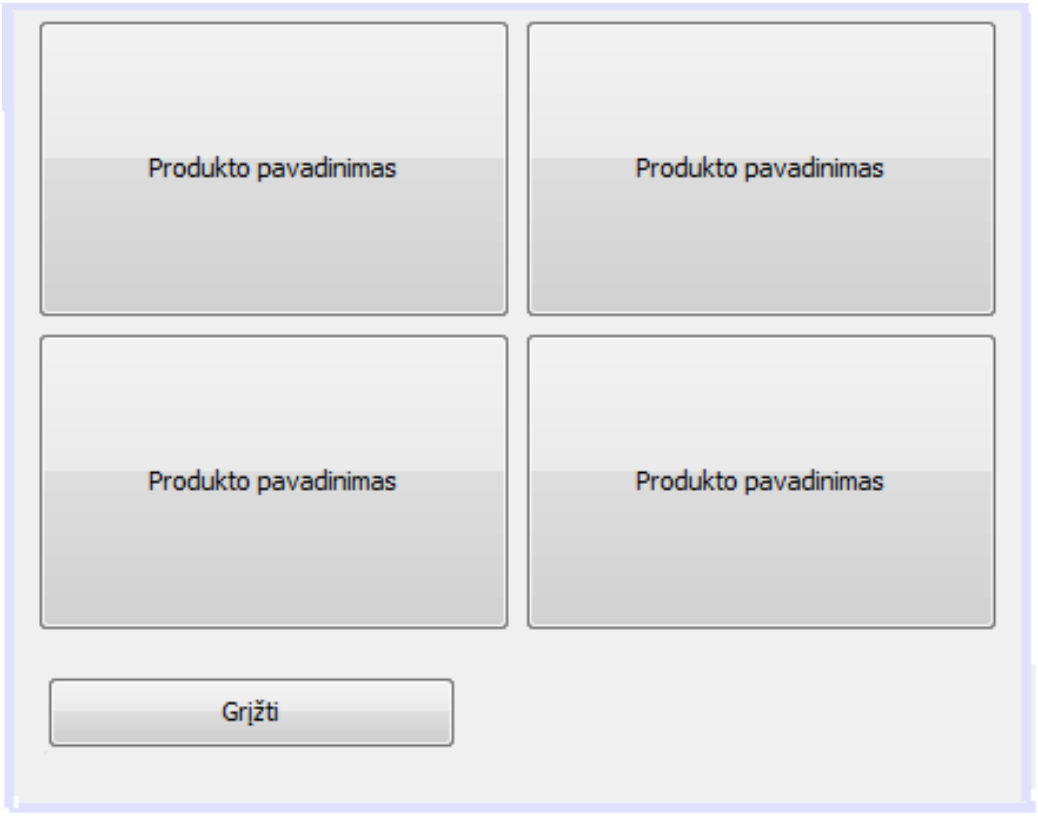

Window 3 Confirmation window

## 5.4. Employee initial window (Window 4)




Window 5 The initial window of the employee

## 5.5. Worker bulk product selection window (Window 5)

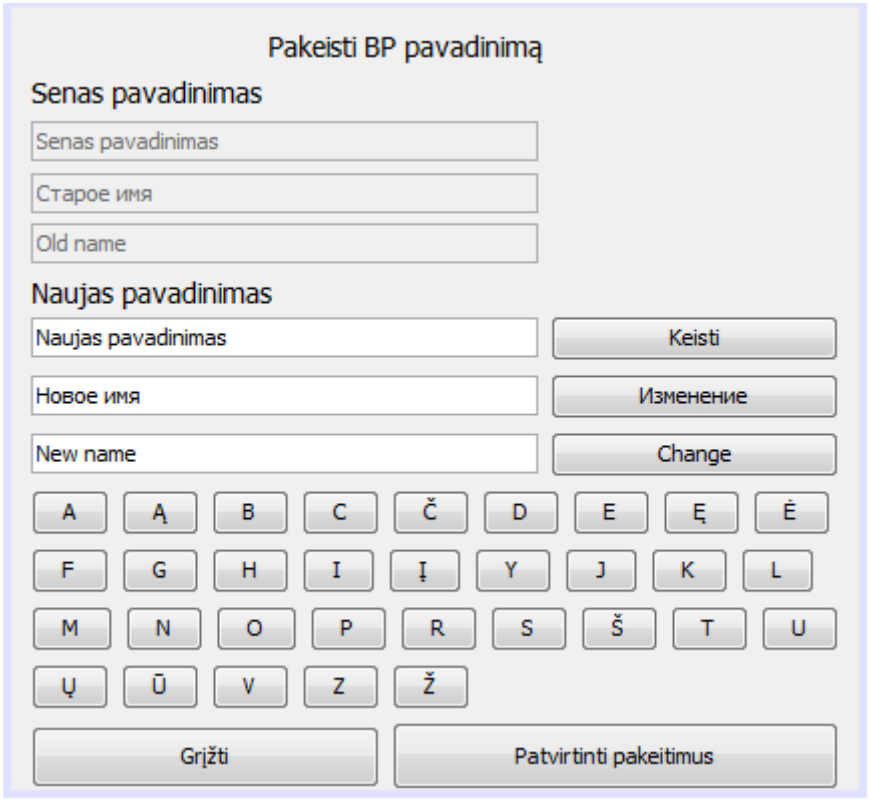



Window 5 The worker's bulk product selection window

## 5.6. Bulk product price change window (Window 6)


Window 6 Bulk product price change window

## 5.7. Bulk product name change window (Window 7)




Window 7 Bulk product name change window

## 5.8. Job completion window (Window 8)


Window 8 Job completion window