

Министерство науки и высшего образования Российской Федерации

Федеральное государственное автономное образовательное учреждение высшего образования
Национальный исследовательский Нижегородский государственный университет им. Н.И.
Лобачевского

Институт информационных технологий, математики и механики

Отчет по практическому заданию №4

«Инструменты разработки мобильных приложений»

Выполнил:

студент группы 381908-4
Грищенко А. А.

Нижний Новгород
2022

Оглавление

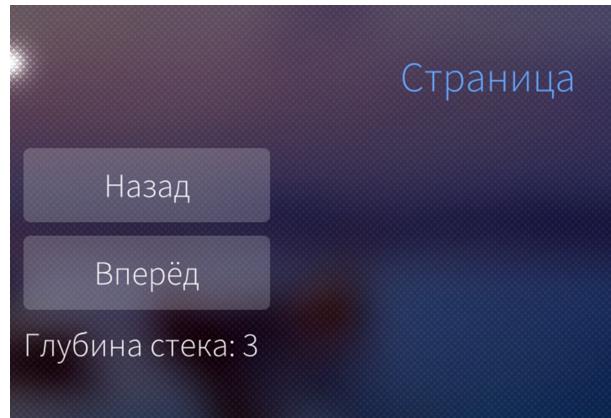
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Цель задачи

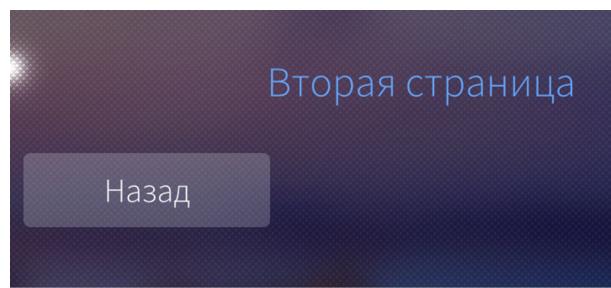
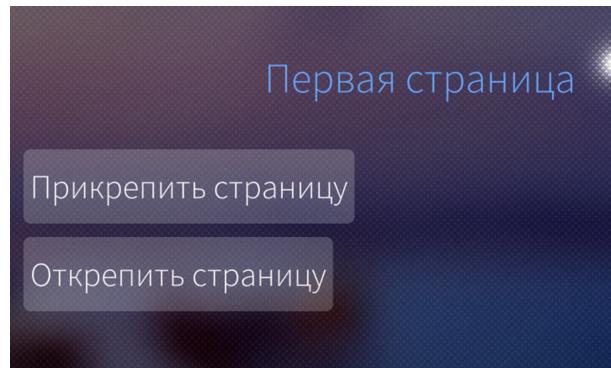
В данном лабораторной работе требуется научиться организовывать многостраничное приложение, использовать контейнеры Silica, вытягиваемые меню и обложку приложения.

Постановка задачи

1. Создать приложение, которое будет отображать страницу с двумя кнопками “Назад” и “Вперёд”. Первая удалит текущую страницу со стека, вторая добавит новую. Также на экране нужно отображать текущую глубину стека.

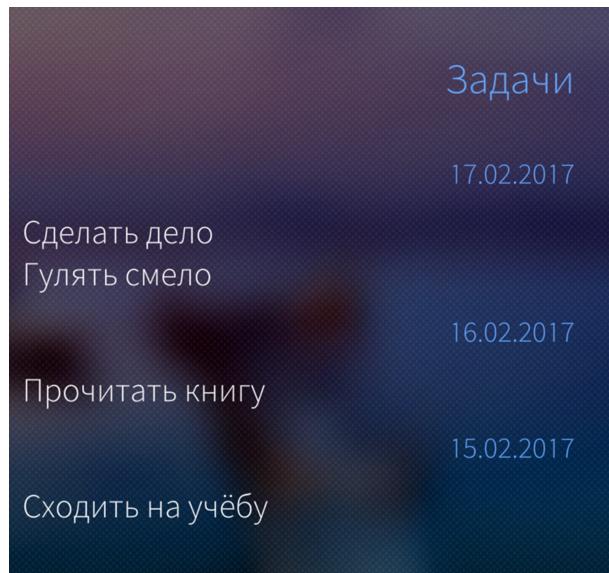


2. Создать приложение из двух страниц. Первая страница содержит две кнопки “Добавить страницу” и “Убрать страницу”. Первая кнопка добавит вторую страницу как прикреплённую, вторая кнопка её удалит. На второй странице должна быть кнопка для возврата на первую страницу без закрытия второй.



3. Создать приложение с одной кнопкой и текстовым полем. После нажатия на кнопку отображается диалог для ввода текста. После согласия с результатом введённый текст отображается в текстовое поле.
4. Создать приложение с одной кнопкой и текстовым полем. После нажатия на кнопку отображается диалог для выбора даты. После согласия с результатом ввода выбранная дата отображается в текстовое поле.

5. Создать приложение с одной кнопкой и текстовым полем. После нажатия на кнопку отображается диалог для выбора времени. После согласия с результатом ввода выбранное время отображается в текстовом поле.
6. Создать приложение со списком **SilicaListView**, из задач на неделю. Задачи должны содержать дату и описание. В списке задачи группировать по датам.



7. Создать приложение с **SilicaWebView** для доступа к вашему любимому сайту.
8. Использовать **SlideshowView** для просмотра и перелистывания задач на неделю. На одном слайде – одна задача.
9. Создать приложение с вытягиваемыми меню сверху и снизу и текстовым полем. После выбора какого-либо элемента меню, его название отобразить в текстовом поле.
10. Создать приложение со списком и контекстным меню. После выбора элемента контекстного меню отобразить в консоли название выбранного элемента меню и индекс элемента списка.
11. Создать приложение с обложной-счётчиком. На обложке отобразить текущий счёт и две кнопки для добавления единицы к счёту и для сброса счётчика.

Описание программной реализации

1. Добавление страниц и отображение глубины стека

Глубина стека отображается в **Label** используя `pageStack.depth` для получения значения. `pageStack.push(Qt.resolvedUrl("Page2.qml"))` создает новую страницу, `pageStack.pop()` удаляет страницу из стека.

2. Прикрепленные страницы

`pageStack.pushAttached(Qt.resolvedUrl("Page2.qml"))` прикрепляет страницу, `pageStack.popAttached()` – открепляет.

3. Диалог для ввода текста

Чтобы измененять ввод в **TextField**, в **Dialog** используем `onAccepted: field.text = firstTextFieldValue.`

4. Диалог с календарем

Чтобы измененять ввод в **TextField**, в **Dialog** используем **DatePickerDialog** с `onAccepted: field.text = date.toDateString()`.

5. Диалог с часами

TimePickerDialog с `onAccepted: field.text = time.toTimeString()`.

6. Список задач

Используем **SilicaListView** с **ListModel**.

7. Браузер

Используем **SilicaWebView** со свойством `url`.

8. Слайд-шоу

Используем **SlideshowView** с **ListModel**.

9. Вытягиваемые меню

Используем **SilicaListView** с **PullDownMenu**.

10. Список с контекстным меню

Используем **SilicaListView** с **ContextMenu**.

11. Обложка приложения

Используем **CoverActionList** с **CoverAction**.

Руководство пользователя

В первом задании пользователю отображается глубина стека.

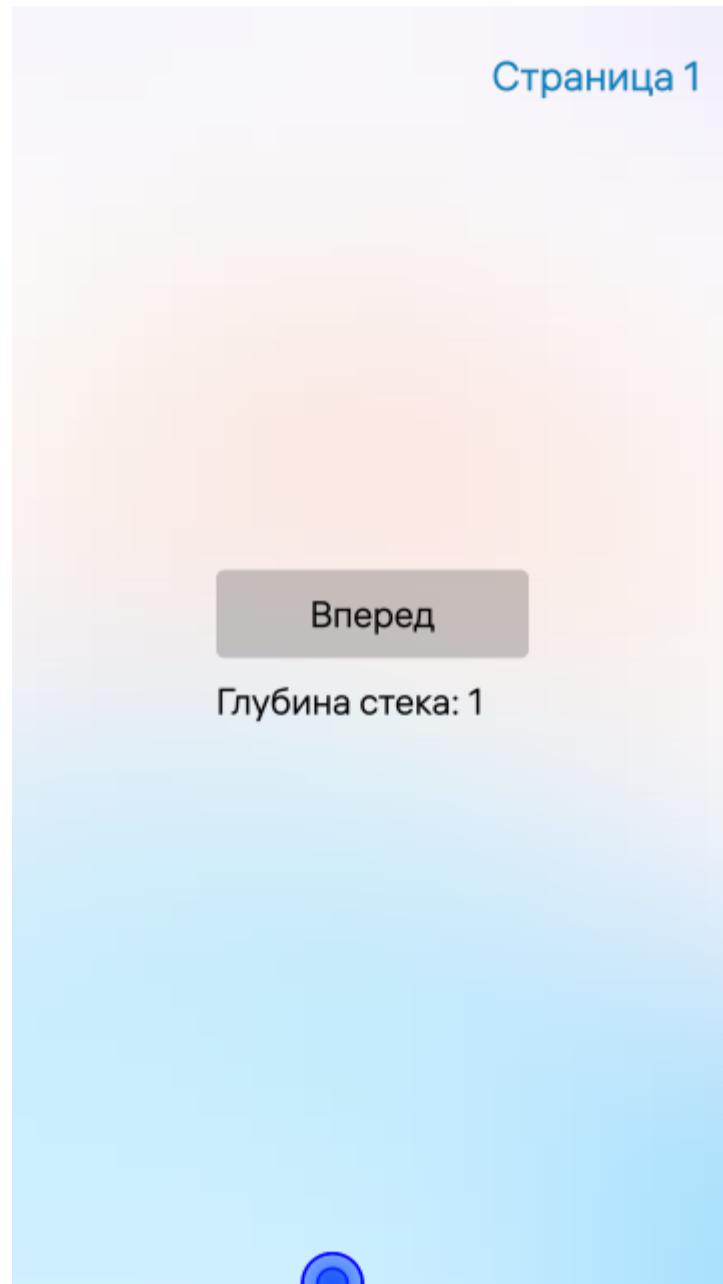


Рис. 1: Глубина стека на первой странице

Страница 1

Вперед

Глубина стека: 1



Рис. 2: Глубина стека на второй странице

Во втором задании при нажатии на кнопку прикрепить появляется индикатор перехода на следующую страницу.

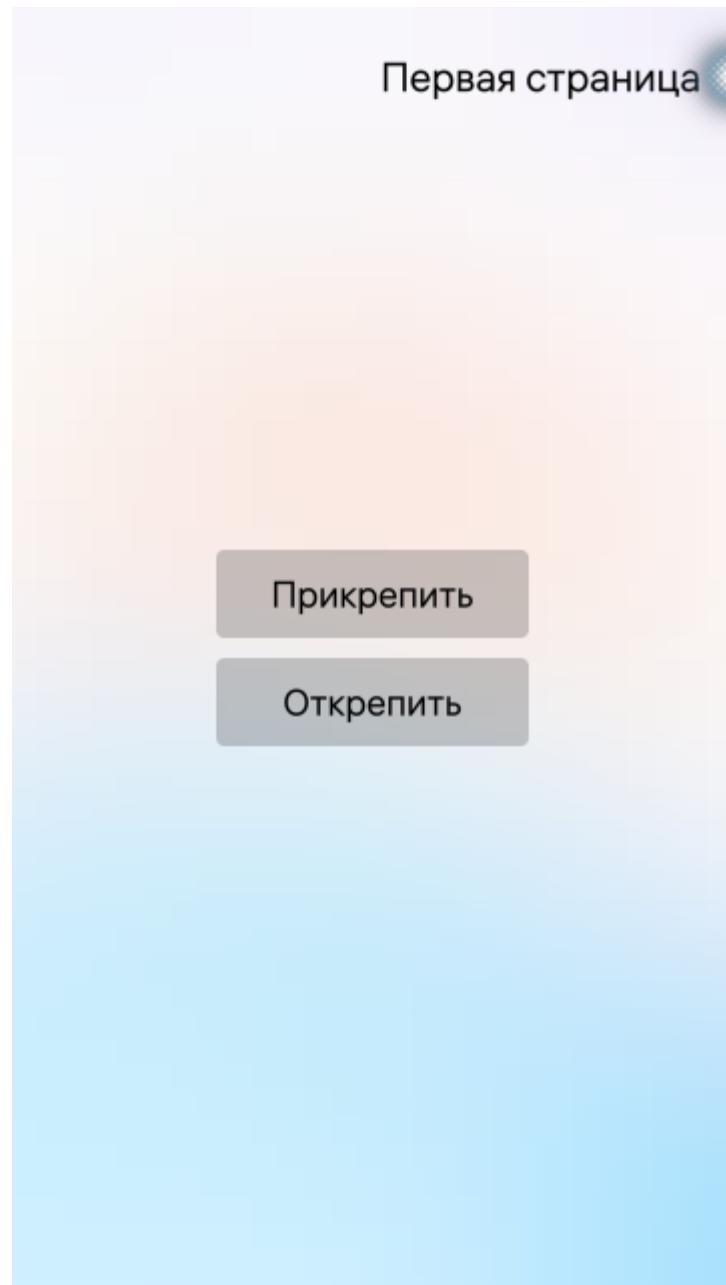


Рис. 3: Прикрепление страницы

В третьем задании ввод в текстовом поле управляется диалогом.

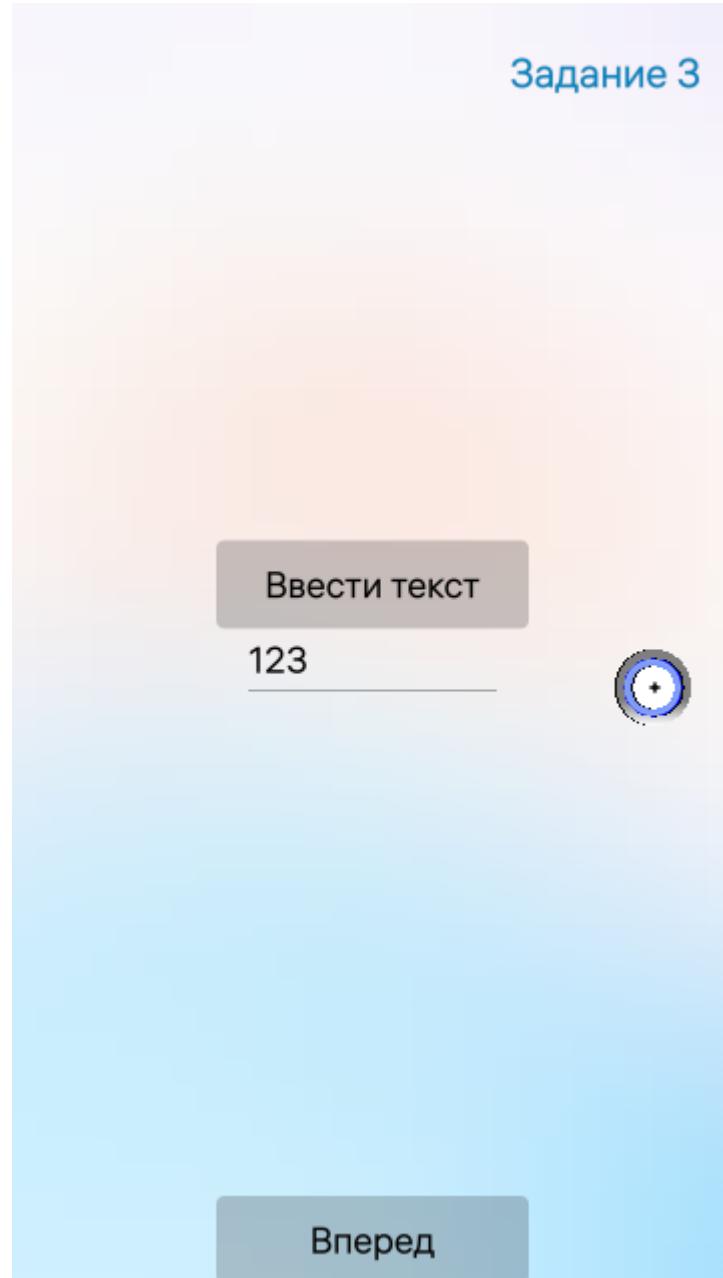


Рис. 4: Текстовое поле

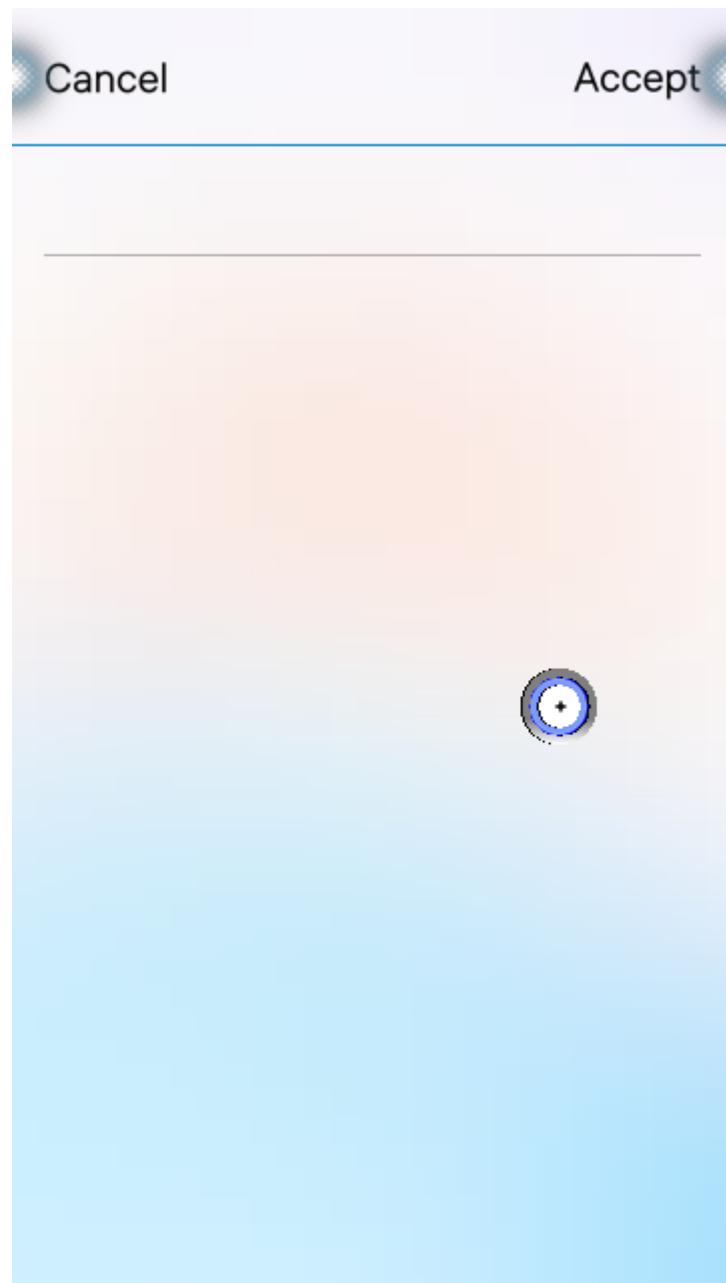


Рис. 5: Диалог ввода текста

В четвертом задании ввод в текстовом поле управляется диалогом выбора даты.

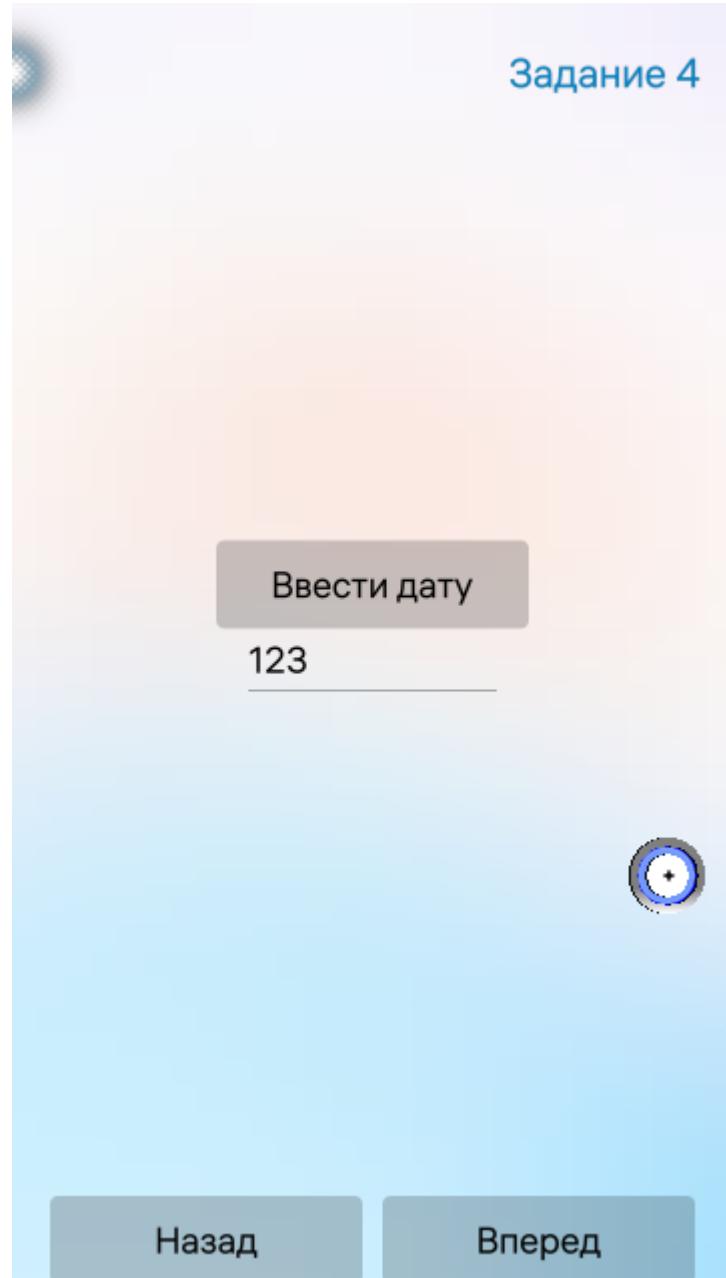


Рис. 6: Текстовое поле

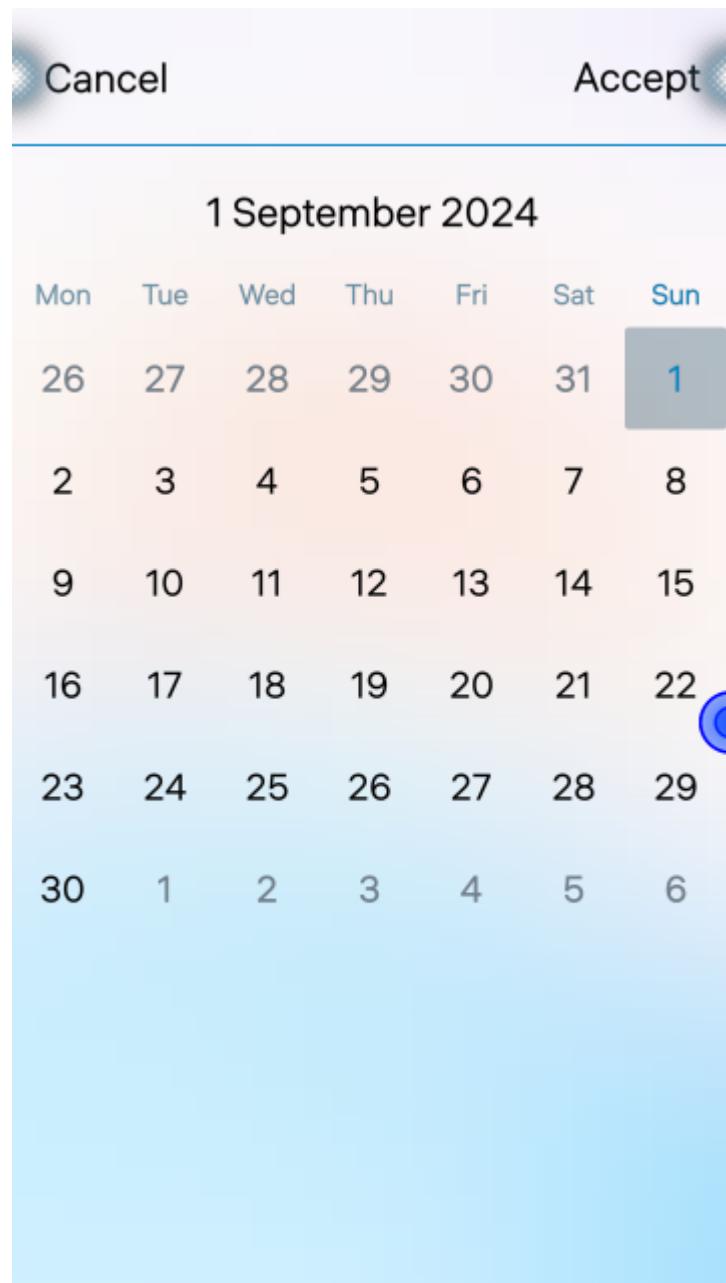


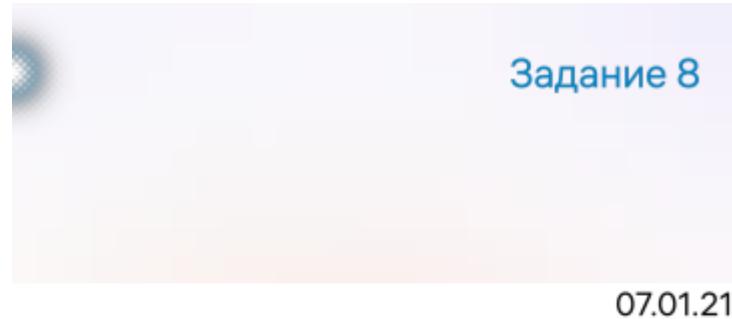
Рис. 7: Диалог ввода даты

В седьмом задании на странице находится браузер.



Рис. 8: Браузер

В восьмом задании список дел отображается как слайд-шоу.



Помыть посуду



Рис. 9: Слайд-шоу

В девятом задании есть два вытягиваемых меню.

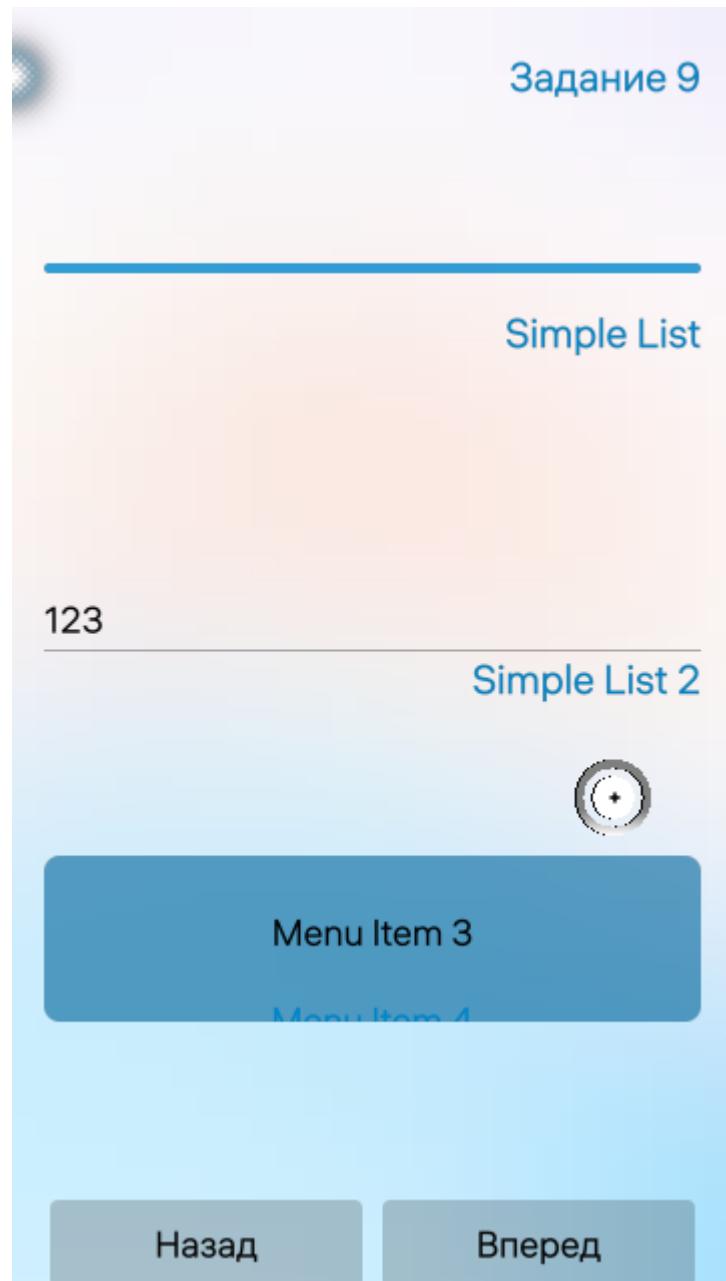


Рис. 10: Вытягиваемые меню

В десятом задании на элементах списка открывается контекстное меню.

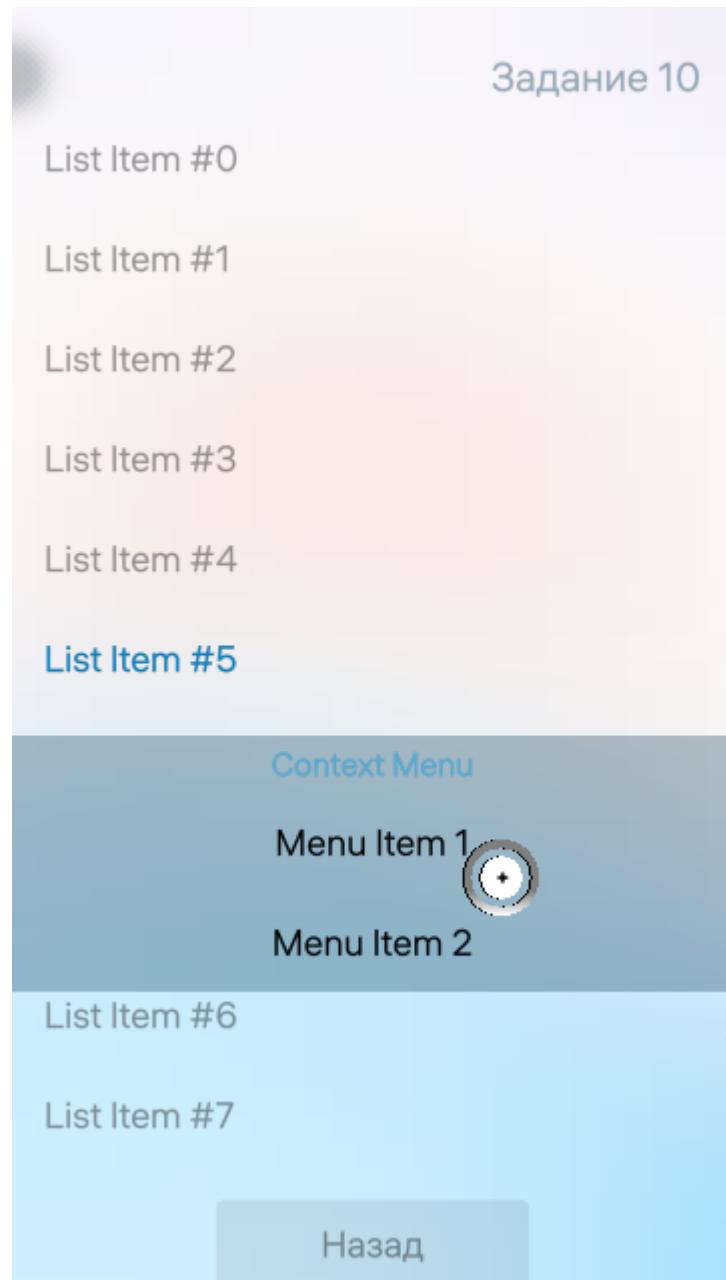


Рис. 11: Контекстное меню

На обложке приложения находится рабочий счетчик.

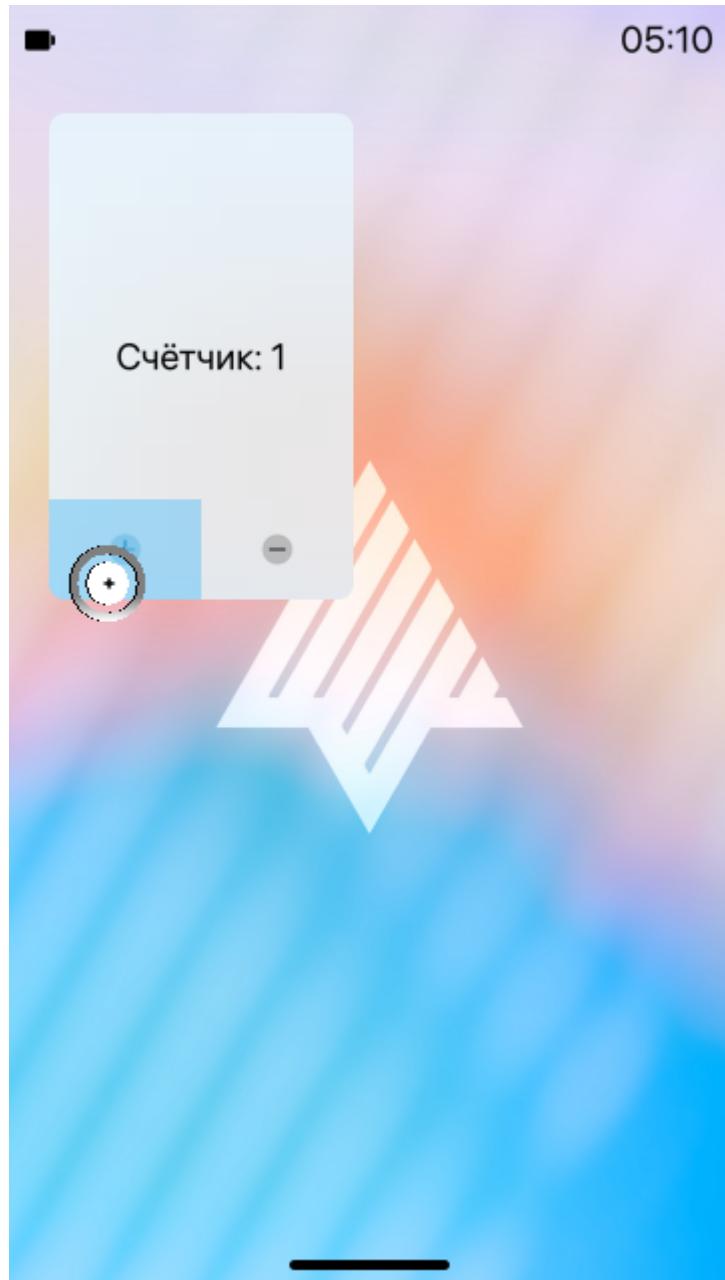


Рис. 12: Обложка

Заключение

В процессе выполнения данной лабораторной работы мы научились организовывать многостраничное приложение, использовать контейнеры Silica, вытягиваемые меню и обложку приложения.

Приложение

Task1-1.qml

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**  
*****  
  
import QtQuick 2.0  
import Sailfish.Silica 1.0  
  
Page {  
    objectName: "mainPage"  
    allowedOrientations: Orientation.All
```

```

PageHeader {
    objectName: "pageHeader"
    title: qsTr("Страница 1")
}

Column {
    anchors.horizontalCenter: parent.horizontalCenter
    anchors.centerIn: parent
    spacing: 20

    Button {
        text: "Вперед"
        onClicked: pageStack.push(Qt.resolvedUrl(qsTr("Page%1.qml").arg((pageStack.depth + 1) % pageStack.count)))
    }
    Label {
        text: qsTr("Глубина стека: %1").arg(pageStack.depth)
    }
}
}

```

Task1-2.qml

```

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**
*****
```

```

import QtQuick 2.0
import Sailfish.Silica 1.0

Page {
    objectName: "mainPage"
    allowedOrientations: Orientation.All

    PageHeader {
        objectName: "pageHeader"
        title: qsTr("Страница 2")
    }

    Column {
        anchors.horizontalCenter: parent.horizontalCenter
        anchors.centerIn: parent
        spacing: 20

        Button {
            text: "Назад"
            onClicked: pageStack.pop()
        }
        Button {
            text: "Вперед"
            onClicked: pageStack.push(Qt.resolvedUrl(qsTr("Page%1.qml").arg((pageStack.length - 1) * 2 + 1)))
        }
        Label {
            text: qsTr("Глубина стека: %1").arg(pageStack.depth)
        }
    }
}
```

Task1-2.qml

```

*****
```

```

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**
*****
```

```
import QtQuick 2.0
import Sailfish.Silica 1.0
```

```
Page {
    objectName: "mainPage"
    allowedOrientations: Orientation.All

    PageHeader {
        objectName: "pageHeader"
        title: qsTr("Страница 2")
    }

    Column {
        anchors.horizontalCenter: parent.horizontalCenter
```

```

anchors.centerIn: parent
spacing: 20

Button {
    text: "Назад"
    onClicked: pageStack.pop()
}
Button {
    text: "Вперед"
    onClicked: pageStack.push(Qt.resolvedUrl(qsTr("Page%1.qml").arg((pageStack
Label {
    text: qsTr("Глубина стека: %1").arg(pageStack.depth)
}
}

}

```

Task2-1.qml

```

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*****/



import QtQuick 2.0
import Sailfish.Silica 1.0


Page {
    objectName: "mainPage"
    allowedOrientations: Orientation.All

    PageHeader {
        objectName: "pageHeader"
        title: qsTr("Первая страница")
    }

    Column {
        anchors.horizontalCenter: parent.horizontalCenter
        anchors.centerIn: parent
        spacing: 20

        Button {
            text: "Прикрепить"
            onClicked: pageStack.pushAttached(Qt.resolvedUrl(qsTr("Page2.qml")))
        }
        Button {
            text: "Открепить"
            onClicked: pageStack.popAttached()
        }
    }
}

```

Task2-2.qml

```

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*****
```

```

import QtQuick 2.0
import Sailfish.Silica 1.0

Page {
    objectName: "mainPage"
    allowedOrientations: Orientation.All

    PageHeader {
        objectName: "pageHeader"
        title: qsTr("Страница 2")
    }

    Column {
        anchors.horizontalCenter: parent.horizontalCenter
        anchors.centerIn: parent
        spacing: 20

        Button {
            text: "Назад"
            onClicked: pageStack.navigateBack(1)
        }
    }
}
```

```
    }
}
```

Task03.qml

```
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*****
```

```
import QtQuick 2.0
import Sailfish.Silica 1.0

Page {
    objectName: "mainPage"
```

```

allowedOrientations: Orientation.All

PageHeader {
    objectName: "pageHeader"
    title: qsTr("Задание 3")
}

Column {
    anchors.centerIn: parent

    Button {
        text: "Ввести текст"
        onClicked: dialog.open()
    }
    TextField {
        id: field
        text: "123"
    }
}

Dialog {
    id: dialog
    property alias firstTextFieldValue: firstTextField.text

    Column {
        width: parent.width
        spacing: Theme.paddingMedium
        DialogHeader { }
        TextField {
            id: firstTextField
            width: parent.width
        }
    }
    onAccepted: field.text = firstTextFieldValue
}

Row {
    anchors.horizontalCenter: parent.horizontalCenter
    anchors.bottom: parent.bottom
    spacing: 20

    Button {
        text: "Вперед"
        onClicked: pageStack.push(Qt.resolvedUrl(qsTr("Task04.qml")))
    }
}

```

Task04.qml

```
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**  
*****  
  
import QtQuick 2.0  
import Sailfish.Silica 1.0  
  
Page {  
    objectName: "mainPage"  
    allowedOrientations: Orientation.All  
  
    PageHeader {  
        objectName: "pageHeader"  
        title: qsTr("Задание 4")  
    }  
}
```

```

}

Column {
    anchors.centerIn: parent

    Button {
        text: "Ввести дату"
        onClicked: dialog.open()
    }
    TextField {
        id: field
        text: "123"
    }
}

DatePickerDialog {
    id: dialog
    onAccepted: field.text = date.toString()
}

Row {
    anchors.horizontalCenter: parent.horizontalCenter
    anchors.bottom: parent.bottom
    spacing: 20

    Button {
        text: "Назад"
        onClicked: pageStack.pop()
    }
    Button {
        text: "Вперед"
        onClicked: pageStack.push(Qt.resolvedUrl(qsTr("Task05.qml")))
    }
}
}

```

Task05.qml

```

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**
*****
```

```
import QtQuick 2.0
import Sailfish.Silica 1.0
```

```
Page {
    objectName: "mainPage"
    allowedOrientations: Orientation.All

    PageHeader {
        objectName: "pageHeader"
        title: qsTr("Задание 5")
    }

    Column {
        anchors.centerIn: parent

        Button {
            text: "Ввести время"
            onClicked: dialog.open()
        }
        TextField {
            id: field
            text: "123"
```

```

        }
    }

TimePickerDialog {
    id: dialog
    onAccepted: field.text = time.toTimeString()
}

Row {
    anchors.horizontalCenter: parent.horizontalCenter
    anchors.bottom: parent.bottom
    spacing: 20

    Button {
        text: "Назад"
        onClicked: pageStack.pop()
    }
    Button {
        text: "Вперед"
        onClicked: pageStack.push(Qt.resolvedUrl(qsTr("Task06.qml")))
    }
}
}

```

Task06.qml

```

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**
*****
```

```

import QtQuick 2.0
import Sailfish.Silica 1.0
```

```

Page {
    objectName: "mainPage"
    allowedOrientations: Orientation.All

    PageHeader {
        objectName: "pageHeader"
        title: qsTr("Задание 6")
    }

    ListModel {
        id: tasksModel
        ListElement { desc: "Помыть посуду"; date: "07.01.21"; }
        ListElement { desc: "Сделать лабы"; date: "07.01.21"; }
        ListElement { desc: "Погулять"; date: "09.01.21"; }
        ListElement { desc: "Поспать"; date: "12.01.21"; }
    }

    Item {
        anchors.centerIn: parent
        width: 500
        height: 700
        SilicaListView {
            anchors.fill: parent
            model: tasksModel
            header: PageHeader { title: "Список дел" }
            section {
                property: 'date'
                delegate: SectionHeader { text: section }
            }
            delegate: Text { text: desc }
        }
    }
}
```

```

        }

Row {
    anchors.horizontalCenter: parent.horizontalCenter
    anchors.bottom: parent.bottom
    spacing: 20

    Button {
        text: "Назад"
        onClicked: pageStack.pop()
    }
    Button {
        text: "Вперед"
        onClicked: pageStack.push(Qt.resolvedUrl(qsTr("Task07.qml")))
    }
}
}

```

Task07.qml

```

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**
*****/



import QtQuick 2.0
import Sailfish.Silica 1.0


Page {
    objectName: "mainPage"
    allowedOrientations: Orientation.All

    PageHeader {
        objectName: "pageHeader"
        title: qsTr("Задание 7")
    }

    Item {
        anchors {
            left: parent.left; right: parent.right;
            verticalCenter: parent.verticalCenter;
        }
        height: parent.height * 0.8
        SilicaWebView {
            id: webView
            anchors.fill: parent
            url: "http://sailfishos.org"
        }
    }

    Row {
        anchors.horizontalCenter: parent.horizontalCenter
        anchors.bottom: parent.bottom
        spacing: 20

        Button {
            text: "Назад"
            onClicked: pageStack.pop()
        }
        Button {
            text: "Вперед"
            onClicked: pageStack.push(Qt.resolvedUrl(qsTr("Task08.qml")))
        }
    }
}

```

Task08.qml

```
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**  
*****  
  
import QtQuick 2.0  
import Sailfish.Silica 1.0  
  
Page {  
    objectName: "mainPage"  
    allowedOrientations: Orientation.All  
  
    PageHeader {  
        objectName: "pageHeader"  
        title: qsTr("Задание 8")  
    }  
}
```

```

}

ListModel {
    id: tasksModel
    ListElement { desc: "Помыть посуду"; date: "07.01.21"; }
    ListElement { desc: "Сделать лабы"; date: "07.01.21"; }
    ListElement { desc: "Погулять"; date: "09.01.21"; }
    ListElement { desc: "Поспать"; date: "12.01.21"; }
}

Item {
    anchors {
        left: parent.left; right: parent.right;
        verticalCenter: parent.verticalCenter;
    }
    height: parent.height * 0.8

    SlideshowView {
        id: view
        anchors.centerIn: parent
        height: width
        itemHeight: width; itemWidth: width;
        model: tasksModel
        delegate: Rectangle {
            width: view.itemWidth;
            height: view.itemHeight;
            Text {
                anchors {
                    top: parent.top;
                    right: parent.right;
                }
                text: date
            }
            Text {
                anchors.centerIn: parent
                text: desc
            }
        }
    }
}

Row {
    anchors.horizontalCenter: parent.horizontalCenter
    anchors.bottom: parent.bottom
    spacing: 20

    Button {
        text: "Назад"
        onClicked: pageStack.pop()
    }
}

```

```

        }
    Button {
        text: "Вперед"
        onClicked: pageStack.push(Qt.resolvedUrl(qsTr("Task09.qml")))
    }
}
}

```

Task09.qml

```

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****************************************************************************/

```

```

import QtQuick 2.0
import Sailfish.Silica 1.0

Page {
    objectName: "mainPage"
    allowedOrientations: Orientation.All

    PageHeader {
        objectName: "pageHeader"
        title: qsTr("Задание 9")
    }

    SilicaListView {
        PullDownMenu {
            MenuItem {
                text: "Menu Item 1"
                onClicked: field.text = text
            }
            MenuItem {
                text: "Menu Item 2"
                onClicked: field.text = text
            }
            MenuLabel { text: qsTr("Menu Label") }
        }
        anchors {
            left: parent.left; right: parent.right;
        }
        height: parent.height * 0.2
        y: parent.height * 0.2
        header: PageHeader { title: "Simple List" }
    }

    TextField {
        id: field
        text: "123"
        anchors.centerIn: parent
    }

    SilicaListView {
        PushUpMenu {
            MenuItem {
                text: "Menu Item 3"
                onClicked: field.text = text
            }
            MenuItem {
                text: "Menu Item 4"
                onClicked: field.text = text
            }
            MenuLabel { text: qsTr("Menu Label") }
        }
    }
}

```

```

        anchors {
            left: parent.left; right: parent.right;
        }
        height: parent.height * 0.2
        y: parent.height * 0.6
        header: PageHeader { title: "Simple List 2" }
    }

Row {
    anchors.horizontalCenter: parent.horizontalCenter
    anchors.bottom: parent.bottom
    spacing: 20

    Button {
        text: "Назад"
        onClicked: pageStack.pop()
    }
    Button {
        text: "Вперед"
        onClicked: pageStack.push(Qt.resolvedUrl(qsTr("Task10.qml")))
    }
}
}

```

Task10.qml

```

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*****
```

```

import QtQuick 2.0
import Sailfish.Silica 1.0

Page {
    objectName: "mainPage"
    allowedOrientations: Orientation.All

    PageHeader {
        objectName: "pageHeader"
        title: qsTr("Задание 10")
    }

    SilicaListView {
        anchors {
            left: parent.left; right: parent.right;
            verticalCenter: parent.verticalCenter
        }
        height: parent.height * 0.8
        model: 20
        delegate: ListItem {
            id: delegate
            Label {
                x: Theme.paddingLarge
                text: "List Item #" + index
                color: delegate.highlighted ? Theme.highlightColor : Theme.primaryColor
            }
            menu: ContextMenu {
                MenuLabel { text: "Context Menu" }
                MenuItem {
                    text: "Menu Item 1"
                    onClicked: console.log("Menu Item 1 is clicked", index)
                }
                MenuItem {
                    text: "Menu Item 2"
                }
            }
        }
    }
}
```

```

        onClicked: console.log("Menu Item 2 is clicked", index)
    }
}
}

Row {
    anchors.horizontalCenter: parent.horizontalCenter
    anchors.bottom: parent.bottom
    spacing: 20

    Button {
        text: "Назад"
        onClicked: pageStack.pop()
    }
}
}

```

DefaultCoverPage.qml

```

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**  
*****
```

```
import QtQuick 2.0  
import Sailfish.Silica 1.0  
  
CoverBackground {  
    objectName: "defaultCover"  
  
    property int counter: 0  
  
    Label {  
        id: label  
        anchors.centerIn: parent  
        text: qsTr("Счётчик: %1").arg(counter)  
    }  
  
    CoverActionList {  
        CoverAction {  
            iconSource: "image://theme/icon-splus-add"  
            onTriggered: counter++  
        }  
        CoverAction {  
            iconSource: "image://theme/icon-splus-remove"  
            onTriggered: counter--  
        }  
    }  
}
```