



Innovative Mobile Applications

Übung 2



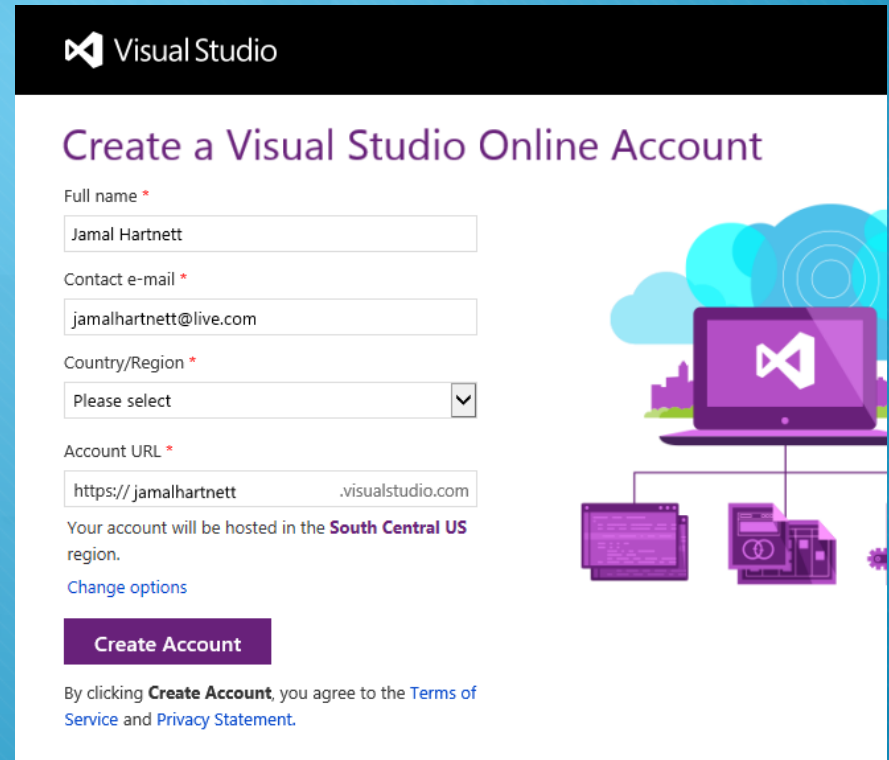
Agenda

- ◊ Organisation mit Visual Studio Online
- ◊ Projekt – Funktionalität und Code
- ◊ C# im Vergleich zu Java
- ◊ Native Funktionalität mittels Xamarin

Visual Studio Online

Setup:

- Anmeldung mit Live-ID
- Account-URL erstellen
- Team-Mitglieder zufügen



The screenshot shows the 'Create a Visual Studio Online Account' page. It features a black header with the Visual Studio logo and name. The main content area is white and contains several form fields: 'Full name' (filled with 'Jamal Hartnett'), 'Contact e-mail' (filled with 'jamalhartnett@live.com'), 'Country/Region' (a dropdown menu showing 'Please select'), and 'Account URL' (filled with 'https://jamalhartnett.visualstudio.com'). Below the form fields, there is a note about the account being hosted in the 'South Central US' region, a link to 'Change options', and a purple 'Create Account' button. At the bottom, a disclaimer states that clicking 'Create Account' agrees to the 'Terms of Service' and 'Privacy Statement'. On the right side of the page, there is a graphic of a laptop displaying the Visual Studio logo, with several server icons connected to it by lines, all in a purple color scheme.

Visual Studio

Create a Visual Studio Online Account

Full name *

Jamal Hartnett

Contact e-mail *

jamalhartnett@live.com

Country/Region *

Please select

Account URL *

https://jamalhartnett .visualstudio.com

Your account will be hosted in the **South Central US** region.

[Change options](#)

Create Account

By clicking **Create Account**, you agree to the [Terms of Service](#) and [Privacy Statement](#).

Visual Studio Online

Backlog:

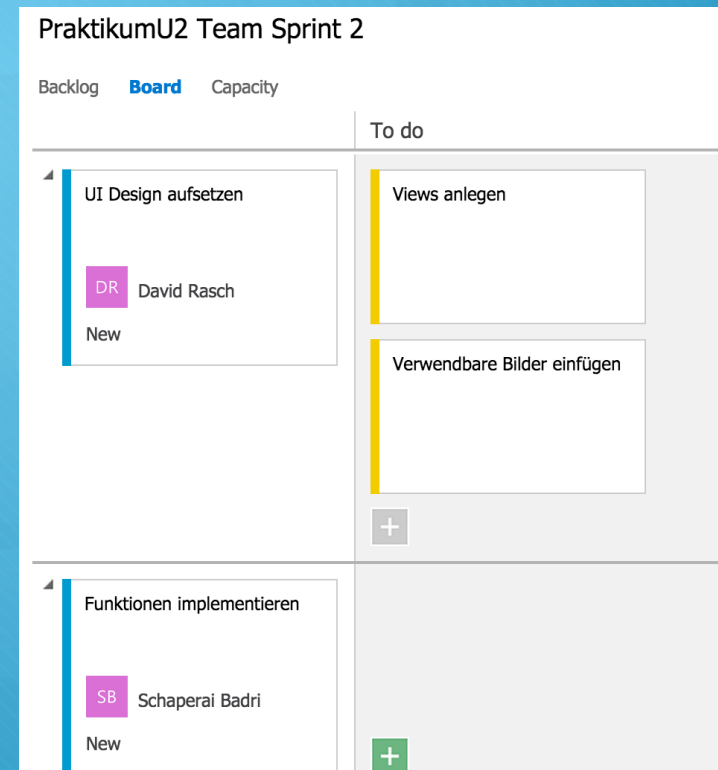
- Ort an dem eine Prioritätenliste der Anforderungen gehalten wird
- Repository aller Informationen

Order	Work Item Type	Title	State	Effort	Iteration Path
1	Product Backlo...	UI Design aufsetzen	New	6	PraktikumU2\Release 1\Sprint 2
2	Product Backlo...	Funktionen implementieren	New	6	PraktikumU2\Release 1\Sprint 2
3	Product Backlo...	Tests	New	1	PraktikumU2\Release 1\Sprint 3
4	Product Backlo...	Präsentationen anfertigen	New	1	PraktikumU2\Release 1\Sprint 3

Visual Studio Online

Scrum:

- Sprints mit gefilterten Anforderungen für die Dauer eines Arbeitsschrittes



Visual Studio Online

To-Do auf Board
anlegen:

Task 17*: C# und Java Vergleich

Tags Add...

C# und Java Vergleich

Iteration: PraktikumU2\Release 1\Sprint 3

STATUS	DETAILS
Assigned To:  Schaperai Badri	Remaining Work: 2
State: To Do	Activity:
Reason: New task	Area: PraktikumU2
Blocked:	

DESCRIPTION	HISTORY	LINKS (1)	ATTACHMENTS
B / U  Folien und Code-Beispiel für einen Vergleich von Java und C# zeigen			

Save Save and close Cancel

Visual Studio Online

Kapazitäten zuweisen:

PraktikumU2 Team Sprint 2

Backlog Board **Capacity**



Team Member	Capacity Per Day	Activity	Days Off
DR David Rasch	2	Development ▼	0 days +
SK Sandro Kurpiers	2	Development ▼	0 days +
SB Schaperai Badri	2	Deployment ▼	0 days +
SW Simon Weiser	2	Design ▼	0 days +
Team Days Off			0 days +

Visual Studio Einbindung

The screenshot displays the Microsoft Visual Studio IDE with the following components:

- Menu Bar:** FILE, EDIT, VIEW, PROJECT, BUILD, DEBUG, TEAM, TOOLS, TEST, ANALYZE, WINDOW, HELP.
- Toolbar:** Includes icons for file operations, debugging, and project management.
- Solution Explorer:** Shows a project structure with files like `FeedAdapter.cs`, `WebActivity.cs`, `AndroidManifest.xml`, `WebActivity.xml`, `Main.xml`, and `RssItem.cs`.
- Team Explorer - Work Items:** Displays a list of work items. The selected item is ID 8, titled "Für Mac-Umgebung entweder Parallels/Virtual Box nutzen oder nativ via Bootcam...".
- Query Results:** A table showing 2 items found. The table has columns: ID, Title, Backlog Priority, Assigned..., State, and Remaining Work.
- Task Detail View:** Shows details for Task 8, including its state (To Do), reason (New task), and activity (PraktikumU2).
- Properties Window:** Displays the properties of the selected work item.

ID	Title	Backlog Priority	Assigned...	State	Remaining Work
8	Für Mac-Umgebung entweder Parallels/Virtual Box nutzen oder nativ via Bootcam...			To Do	1
1	Ideen sammeln für eine kleine App - Übung 2			To Do	2

Task 8: Für Mac-Umgebung entweder Parallels/Virtual Box nutzen oder nativ via Bootcam installieren

State: To Do
Reason: New task
Blocked: No
Activity: Aktivität
Area: PraktikumU2

DESCRIPTION

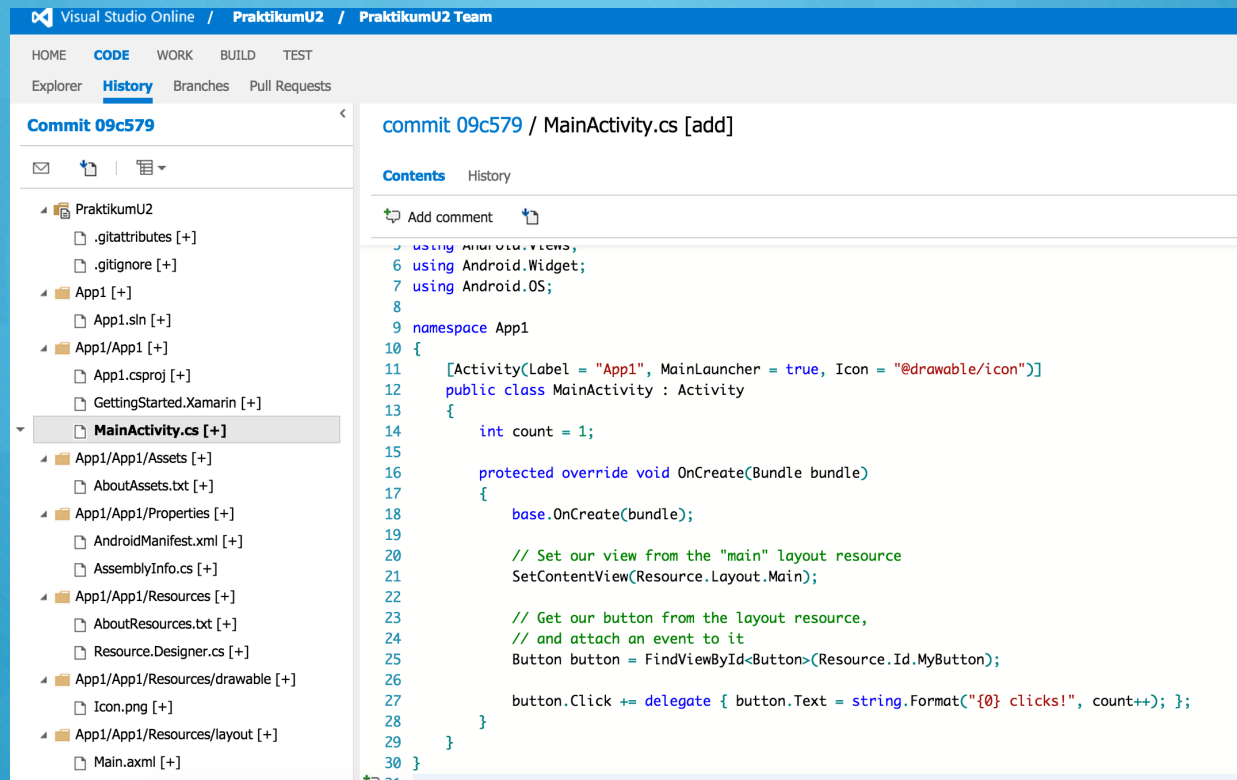
HISTORY LINKS ATTACHMENTS

Type your comment here.

DISCUSSION ONLY ALL CHANGES

(no entries with comments)

Visual Studio Online



The screenshot displays the Visual Studio Online web interface. The top navigation bar includes 'HOME', 'CODE', 'WORK', 'BUILD', and 'TEST'. Below this, the 'History' tab is active, showing a commit history for 'PraktikumU2'. The left sidebar shows a file explorer with the following structure:

- PraktikumU2
 - .gitattributes [+]
 - .gitignore [+]
 - App1 [+]
 - App1.sln [+]
 - App1/App1 [+]
 - App1.csproj [+]
 - GettingStarted.Xamarin [+]
 - MainActivity.cs [+]**
 - App1/App1/Assets [+]
 - AboutAssets.txt [+]
 - App1/App1/Properties [+]
 - AndroidManifest.xml [+]
 - AssemblyInfo.cs [+]
 - App1/App1/Resources [+]
 - AboutResources.txt [+]
 - Resource.Designer.cs [+]
 - App1/App1/Resources/drawable [+]
 - Icon.png [+]
 - App1/App1/Resources/layout [+]
 - Main.xml [+]

The main editor area shows the code for 'commit 09c579 / MainActivity.cs [add]'. The code is as follows:

```
1 using Android.Views;
2 using Android.Widget;
3 using Android.OS;
4
5 namespace App1
6 {
7     [Activity(Label = "App1", MainLauncher = true, Icon = "@drawable/icon")]
8     public class MainActivity : Activity
9     {
10         int count = 1;
11
12         protected override void OnCreate(Bundle bundle)
13         {
14             base.OnCreate(bundle);
15
16             // Set our view from the "main" layout resource
17             SetContentView(Resource.Layout.Main);
18
19             // Get our button from the layout resource,
20             // and attach an event to it
21             Button button = FindViewById<Button>(Resource.Id.MyButton);
22
23             button.Click += delegate { button.Text = string.Format("{0} clicks!", count++); };
24         }
25     }
26 }
```

Visual Studio Online

Chat-Room:

PraktikumU2 Team Room ← 5/4/2015 → Live

	Sandro Kurpiers entered the room	2:06 pm	
Sandro Kurpiers	SK Hier könnt ihr euch Xamarin downloaden: http://xamarin.com/download	2:08 pm	
	Als Studio für den Mac oder als "Plugin" für Visual Studio auf Windows	2:08 pm	
	Schaperai Badri entered the room	2:10 pm	
Schaperai Badri	SB Installation in Visual Studio hat geklappt	2:10 pm	
	Er lädt dann gleich das Android SDK und ne Integration für Android und iOS mit	2:11 pm	
	Ok top	2:11 pm	
	Simon Weiser entered the room	2:12 pm	
	David Rasch entered the room	2:12 pm	
David Rasch	DR RSS Feed scheint gut zu laufen	2:13 pm	
Sandro Kurpiers	SK C# und Java Vergleich steht auch	2:13 pm	
Simon Weiser	SW Xamarin Android Beispiel ist auch bald fertig 😊	2:15 pm	

Post a message



In the room

- DR David Rasch
- SK Sandro Kurpiers
- SB Schaperai Badri
- SM Simon Weiser

Away

- [Manage users...](#)
- [Manage events...](#)



Code-Demo



C# und Java im Vergleich

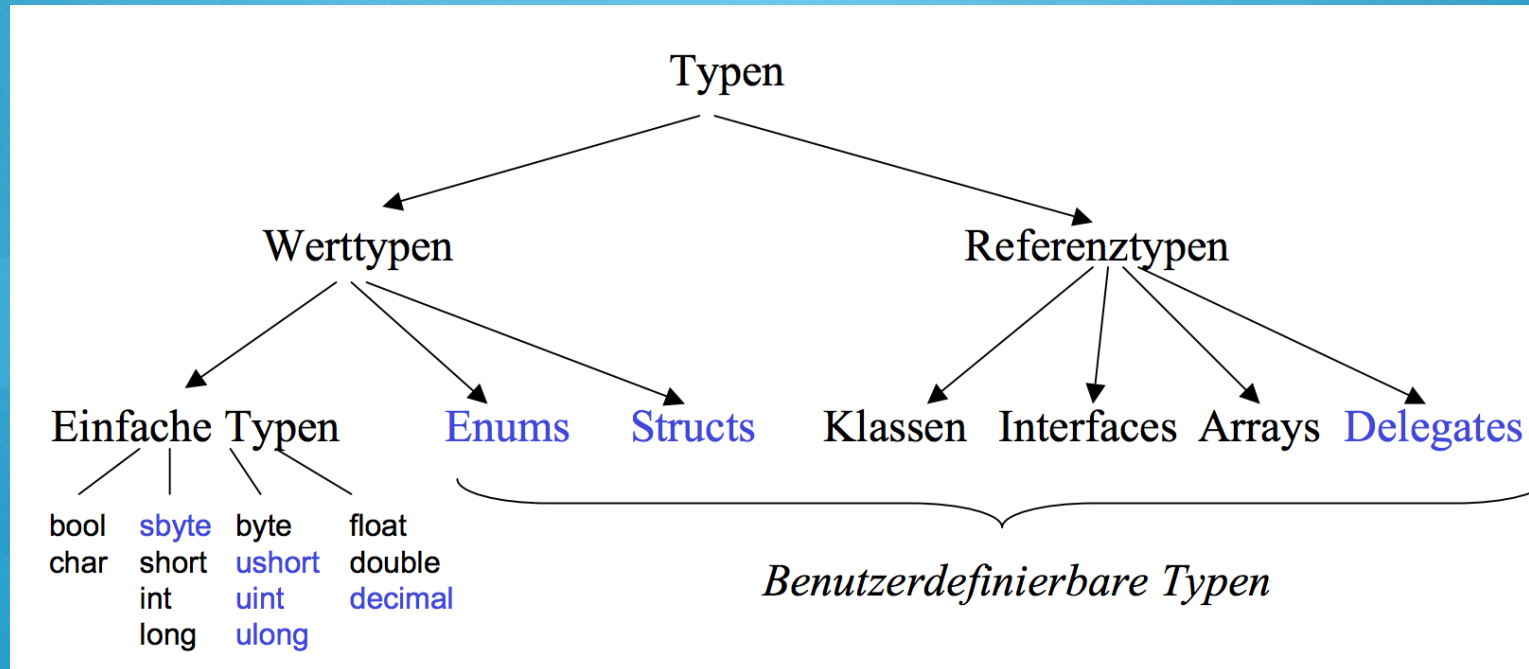
	C#	Java
Entwickler:	Microsoft	Sun Microsystems
Art:	objektorientiert	objektorientiert
Laufzeit- umgebung	.NET (CIL)	JRE (Bytecode)



C# und Java im Vergleich

	C#	Java
Typisierung:	stark, statisch, klassenbasiert	stark, statisch, klassenbasiert
Pointer	ja	nein
Versionierung	ja	nein

C# Typsysteme



C# und Java Codebeispiel

Fibonacci Sequenz in Java:

```
// Fibonacci

class Fibonacci implements Iterable<Integer> {

    public Iterator<Integer> iterator() {
        return new Iterator<Integer>() {
            private int a = 0;
            private int b = 1;

            @Override
            public boolean hasNext() {
                return true;
            }

            @Override
            public Integer next() {
                int tmp = a;
                a = b;
                b = a + tmp;
                return tmp;
            }

            @Override
            public void remove() {
                throw new UnsupportedOperationException(
                    "Keine Fibonacci Sequenz");
            }
        };
    }
}
```

C# und Java Codebeispiel

Fibonacci Sequenz
in C# :

```
1 // Fibonacci
2 public static IEnumerable<int> Fibonacci() {
3     int a = 0;
4     int b = 1;
5
6     while (true) {
7         yield return a;
8         a += b;
9         yield return b;
10        b += a;
11    }
12 }
13 }
14
```




Zusammenfassung

Pro C#:

- Mächtiger (Structs, Referenzparameter)
- Bequemer (Indexer, foreach)
- Flexibler (erlaubt Systemprogrammierung)
- Besser unter Windows



Zusammenfassung

Pro Java:

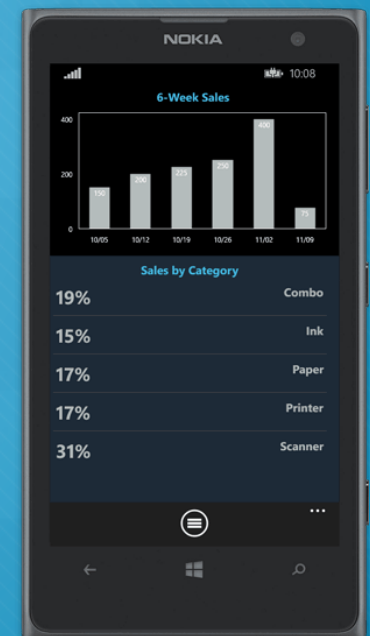
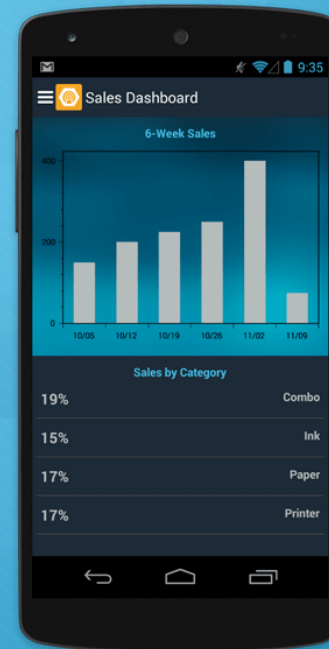
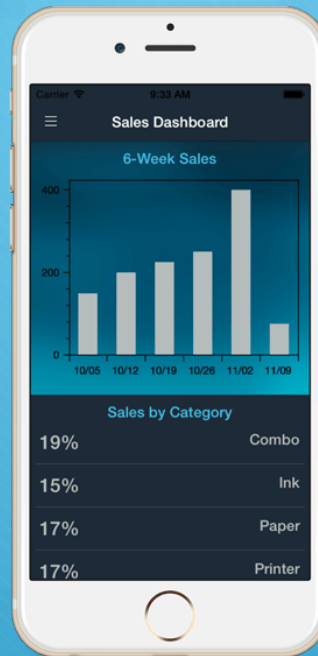
- Kleiner und einfacher
- Größere Verbreitung
- Strikter (kein Unsafe Code)
- Portabler

IDE für C#



Xamarin

Native Programmierung
für Android, iOS, Windows
und Mac mit C#



Xamarin Studio



**Standalone IDE für
mobile App-Entwicklung
(erhältlich für Windows und Mac)**

**Enthält Xamarin.Android,
Xamarin.iOS und Xamarin.Mac
(nicht Windows Phone)**



**Mächtige IDE für zahlreiche
Hochsprachen (nur Windows)**

**In Kombination mit Xamarin for VS
möglich Apps für Android, iOS und
Windows Phone in C# zu schreiben**

Xamarin



Native iOS App

Platform-specific C#



Native Android app

Platform-specific C#



Native Windows app

Platform-specific C#

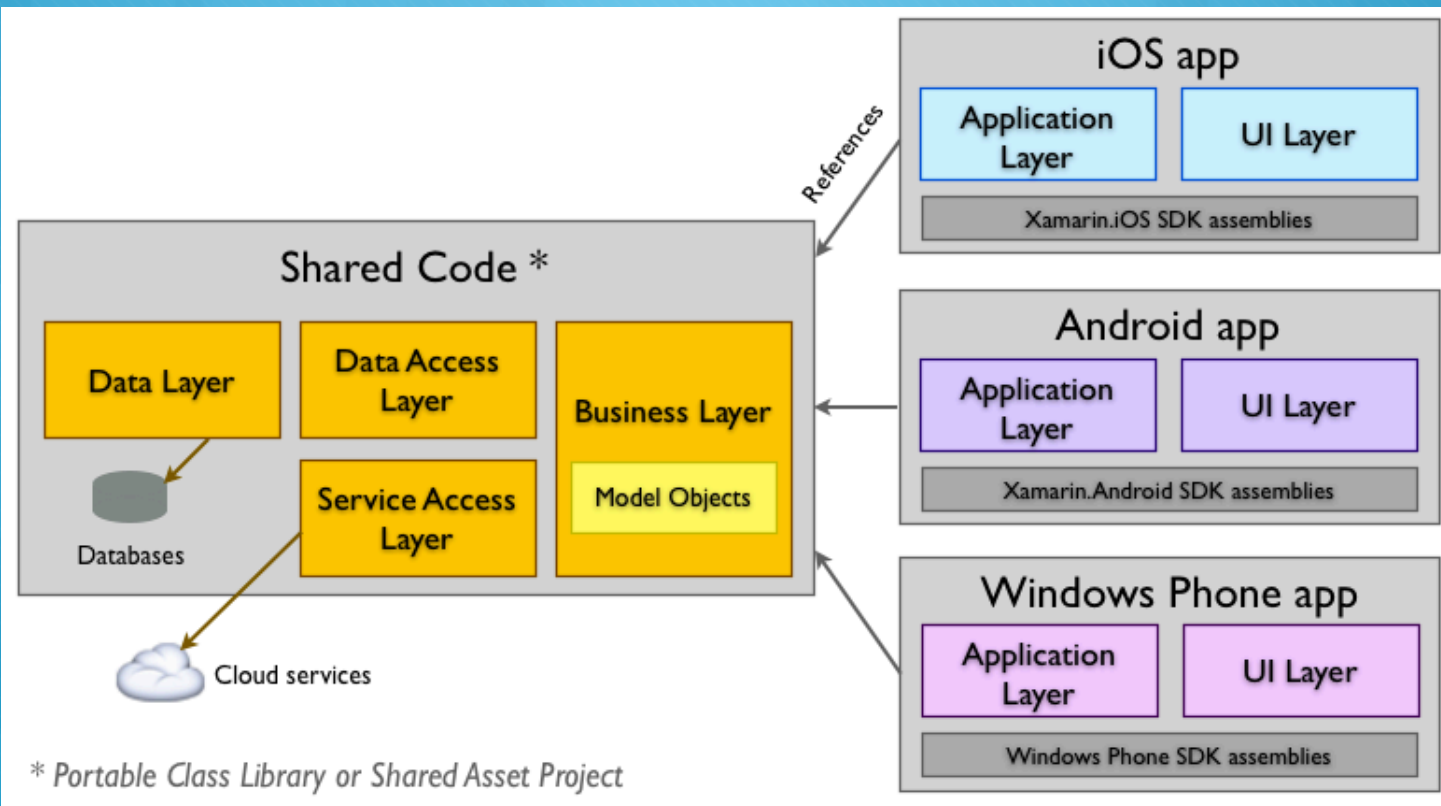
Shared C# App Logic



Xamarin.Forms

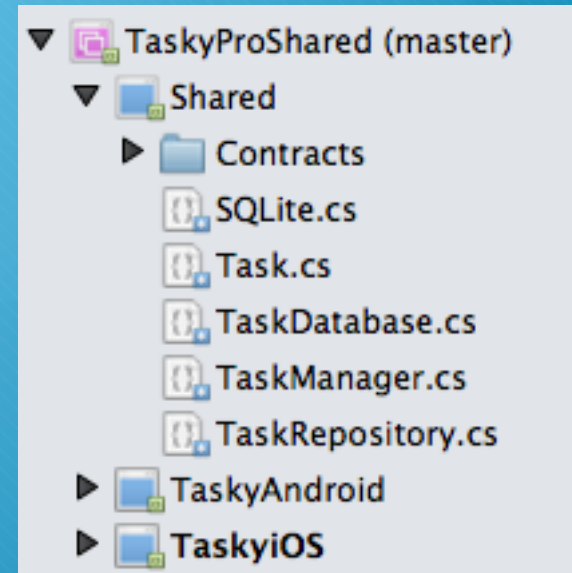
- Applikation (inkl. GUI) muss nur 1x entwickelt werden
- Xamarin.Forms.Button
 - UIButton (iOS)
 - AndroidButton (Android)
 - WindowsPhoneButton (Windows)
- Unterschiede der Plattformen per Default eingebaut

Shared Code



Shared Project

- Shared – Shared Project enthält Code den alle Projekte gemeinsam haben
- TaskyAndroid – Xamarin.Android application project
- TaskyiOS – Xamarin.iOS application project



Compiler Directives

- Sollten Unterscheidungen für eine spezielle Plattform notwendig sein, wird häufig eine Compiler-Direktive verwendet

```
using System;
using System.Collections.Generic;
using System.Text;

#if __IOS__
using MonoTouch.Accounts;
#elif __ANDROID__
using Android.Accounts;
#endif

namespace MyApp.Shared
{
    public class MyFirstClass
    {
```




Danke für die Aufmerksamkeit

Praktikum Innovative Mobile Applications, Übung 2
Schaperai Badri, Sandro Kurpiers, David Rasch, Simon Weiser