DELPHI ADVANCED *WITH JENS FUDGE*

Course outline

Course overview

This 2 day course will take you in depths of the Delphi/Pascal programming language using both the traditional VCL framework but also the recently added framework Firemonkey. By utilizing Firemonkey you will learn how to program and build an application that will compile for Windows, Mac, Android and iOS. As well as get a deeper knowledge of the Pascal language and its capabilities.

VCL

An introduction of VCL framework and a briefing on new features in the last few versions of Delphi.

Firemonkey

The session on the Firemonkey framework will be a quick introduction to what is the Firemonkey Framework, and why does it exist. We will see an example of how we can get a program to run on:

- Mac OSX
- Windows 32 bit
- Windows 64 bit
- Android mobile platform
- iOS mobile platform.

Note, this course does not cover mobile development per se, but we will see the steps to make the same app(lication) run on all the above platforms.

Containers

We will look at various container types in Delphi, generics and anonymous methods

- TObjectList<T>
- TQueue<T>
- TStack<T>
- TDictionary<T>

Searching for items in TObjectList<T> with binarysearch. Specifically searching for objects using binary search.

RTTI

We will in this session take a look at what Run Time Type Information is. RTTI is exactly what the name implies. Its information of any given type at runtime. As a developer you are able to read, and even modify, information about types and classes. We'll take a look at this as well as how to add information to your own classes using Attributes.

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Frames

Introduction to Frames and how we can use them.

- Creating a frame at design time
- Create a constructor and a destructor for the frame
- Use the created frame at runtime

Using 3rd part components

It is very common to purchase 3rd party components, to solve specific tasks. In this session we will create our own components, put them in a package, and install them in the IDE. Thus simulating one way of installing 3rd party components.

Extending your own classes to include events

When you build your classes that may or may not turn into components, you may want to have your system react to events on them. In this session you will learn how to extend your classes to include events.

Threading

Often we have the desire to kick of a thread, and let the user interface keep working. This has some benefits:

- The user interface is responsive, even when waiting on an external source like for example a remote database.
- If we are gathering data from different external sources, there is no point in waiting for resource A to complete before asking resource B.
- The parallels library introduced in XE7 offers some powerful ways of handling futures, tasks and parallel for-loops, we'll have a nice discussion on these topics

This session will introduce the concept of multithreading, and show how to use it.

Database application programming advanced

In this section we will very quickly show how to connect to a database. After that we will go a bit deeper in database programming with various techniques:

- Datasnap – Multitier database applications
- Build an Object-Relational-Model (ORM) application talking to a database
- FireDac as connection to databases
- Use localSQL to query data from a combination of sources. Sources can be two different databases even combined with an xml-file
- Visual Live binding
- Cached Updates - We'll take a look at how we can use cached updates to utilize very powerful techniques to create and revert to save points, letting the user review and revert individual changes made before applying the updates to the database, and many other cool mechanisms with caching the updates.