

Mobile Telephones

Applications

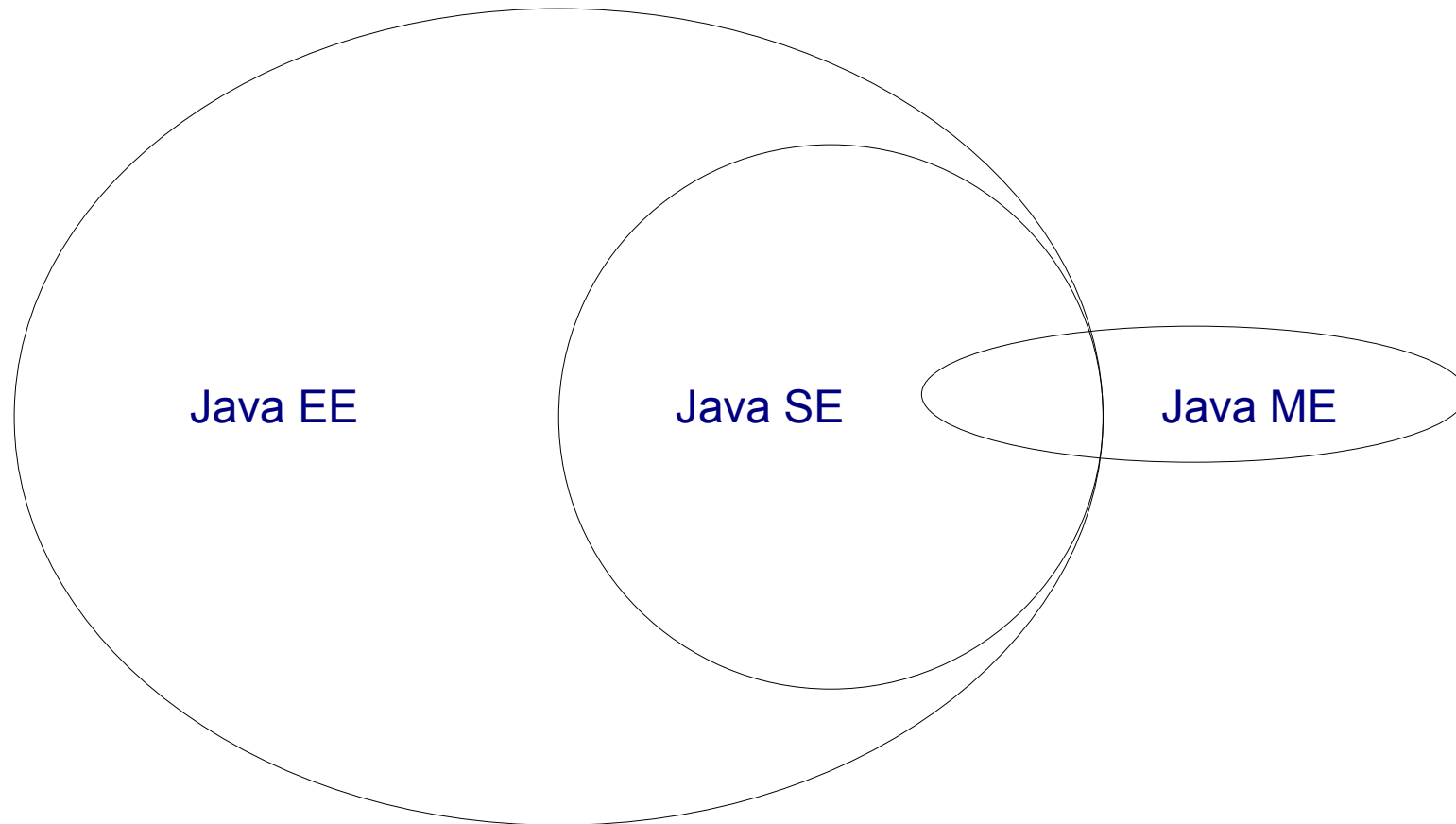


Java ME Applications

What is Java ME?

- ❖ Sun Microsystems groups its Java technologies into groups.
- ❖ The three most important groups are the following platforms:
 - Java SE (J2SE) Java Standard Edition Platform
 - Java EE (J2EE) Java Enterprise Edition Platform
 - Java ME (J2ME) Java Micro Edition Platform
- ❖ The various platforms aren't fully separated from each other.
- ❖ Each platform includes a JVM, libraries of classes & development tools.

What is Java ME?



Java ME Configurations

- ❖ The Java Micro Edition platform has two possible configurations:

CLDC Connected Limited Device Configuration

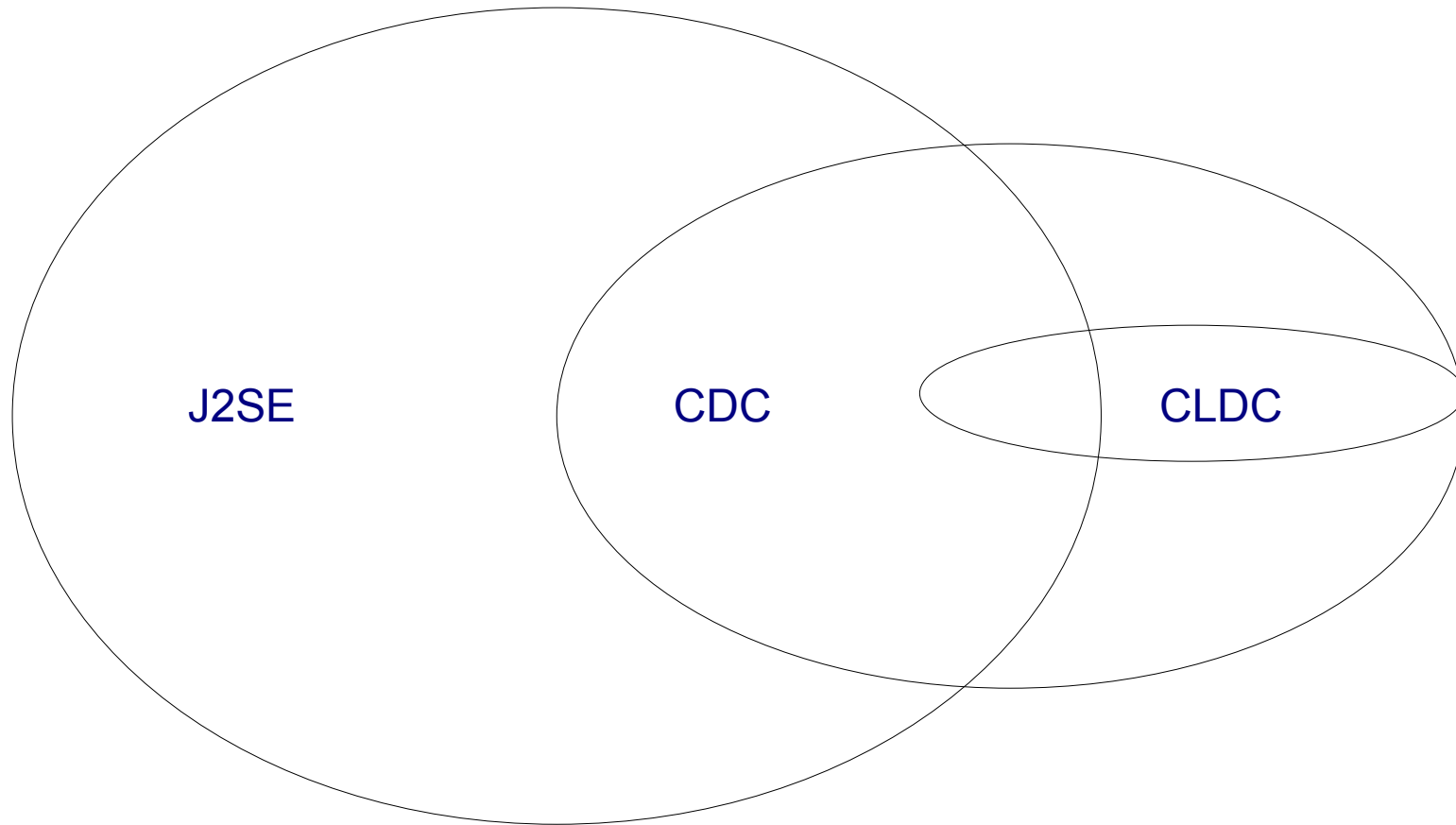
CDC Connected Device Configuration

- ❖ These two configurations target two different categories of products:

Low End Devices

High End Devices

Java ME Configurations



Java ME Profiles

- ❖ On top of the configuration we can expect a profile (one or more) to be deployed.
- ❖ A Java ME profile addresses a specific need, and it typically includes class libraries that are more specific than the classes libraries the configuration includes.
- ❖ Currently, MIDP (Mobile Information Device Profile) is the most popular profile.

Java ME Profiles

MIDP Profile	PDAP Profile	Personal Profile	RMI Profile
		Foundation Profile	
CLDC		CDC	
J2ME			

Java ME (CLDC\MIDP)

- ❖ The mobile telephones mass market includes mobile telephones that support the Java ME(CLDC/MIDP) running environment.

The KVM

- ❖ The KVM is a compact portable small JVM designed for resource constrained devices.
- ❖ The Java ME (CLDC/MIDP) devices use the KVM.

Code Sample

```
import javax.microedition.midlet.*;
import javax.microedition.lcdui.*;

public class Hello extends MIDlet
{
    private Display display;
    private Form form;

    public Hello()
    {
        form = new Form("Hello");
        display = Display.getDisplay(this);
    }

    public void startApp()
    {
        display.setCurrent(form);
    }

    public void pauseApp() { }
    public void destroyApp(boolean cond) { }
}
```

Jacado SuDoKu Case Study

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Game Settings Help

Daily (Easy): Aug 1, 2007

7	9	1	2	4	5	8	6	3
8	4	6	3	1	9	7	5	2
5	3	2	8	6	7	1	4	9
9	2	7	5	8	4	6	3	1
3	5	8	1	2	6	4	9	7
1	6	4	7	9	3	5	2	8
6	7	5	9	3	8	2	1	4
2	8	9	4	5	1	3	7	6
4	1	3	6	7	2	9	8	5

SUDOKU

	9	5			3			
		9	1					6
3	6	5	2	8	7	4	9	1
6			4			7	5	
1	7	2	5		6	9	8	
5	4		9					3
4	7	3	6	9			2	
9			2	1				
	2		7	3				

© JACADO VER 1.0.0

Game Settings Help

Color Scheme: Blue

Level: Easy

Easiest cell: on

Possible numbers: off

Highlight: on

Numbers: Medium

Language: English

6	7	1		5	2			
8		2	3	4				
		9				3	5	
7			6	5		8	4	2

Jacado SuDoKu Case Study

The screenshot shows a Windows Internet Explorer browser window displaying the Jacado Games & Fun website. The address bar shows the URL: http://jacado.com/joomla/index.php?option=com_content&task=view&id=26&Itemid=42. The website header includes navigation links: Home, Contact Us, News, Links. The main content area features a search bar and a 'NewsFlash' section with a large yellow flower image. Below this, there is a 'Main Menu' with links to Home, Dice Games, Video Poker Games, Cards Games, Sports Games, Casino Games, and Fun Applications. The 'Jacado SuDoKu' section is highlighted, showing a 9x9 grid with the word 'SUDOKU' above it. The grid contains numbers and empty cells, representing a partially solved puzzle. The text below the grid describes the game modes and features.

Jacado Games & Fun
Think. Move. Win.

NewsFlash

Jacado Klondike Solitaire! 5 Games in 1! It includes most popular Klondike type solitaires such as Klondike, Easthaven, White Horse, White Head and Blind Alleys. The same well known game from your PC is now available for your mobile telephone! Have fun with sense and pleasure. Choose the solitaire game you want to play and train your memory, attentiveness and intelligence.

Main Menu

- Home
- Dice Games
- Video Poker Games
- Cards Games
- Sports Games
- Casino Games
- Fun Applications

Jacado SuDoKu

Written by Jacado Webmaster
Saturday, 01 September 2007

7	9	1	2	4	5	8	6	3
3	4	3				7	5	2
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1	6	4	7		5	2	3	
6	7	9			1	4		
2	8	9		1	3	7	5	
4	1	3	6	7	2	9	8	

©Jacado version 1.0.0

languages including english, french, deutch, italiano, romana, russian & hebrew. Inner help tips will assist you

MIDP 3.0

- ❖ The MIDP 3.0 (JSR 271) new specification allows the following:
 - multiple concurrent midlets
 - background midlets
 - auto launch midlets
 - inter midlets communication
 - midlets shared libraries
 - enabled drawing to the secondary display
 - localization and internationalization

Jump Start

- ❖ Download the Eclipse Pulsar at www.eclipse.org and the Java ME SDK at <http://java.sun.com/javame>.
- ❖ You can find a free course at www.abelski.com.

Symbian Applications

The Symbian Foundation

- ❖ The Symbian Foundation platform was announced in June 2008, based on the open source Symbian operation system.
- ❖ Applications for the Symbian platform can be developed in C++, Java ME, Python, Ruby, Flash Light and C#.
- ❖ Growing community at www.symbian.org.
- ❖ Adoption by DoCoMo. The main supportive background player is Nokia.

Jump Start

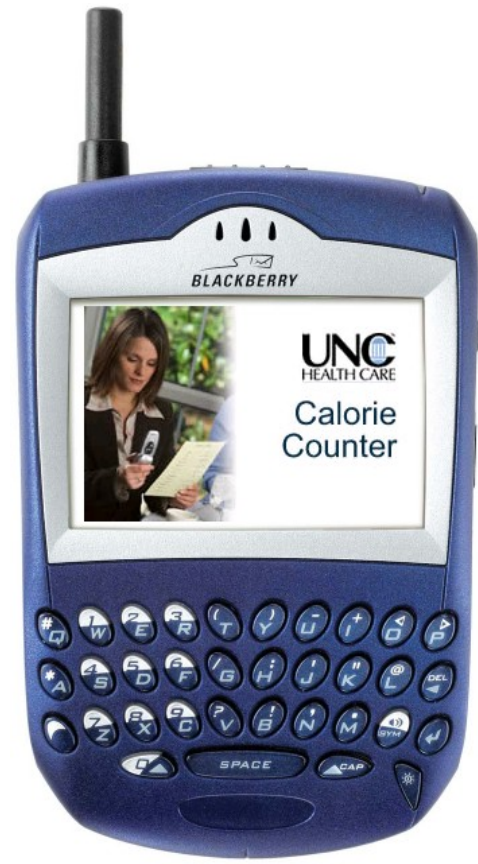
- ❖ Visit at developer.symbian.org where you can download the SDK and find useful resources.

BlackBerry Applications

BlackBerry Java Platform

- ❖ The BlackBerry platform is based on Java. You can develop either in Java using BlackBerry libraries or in Java ME.

UNC Health Care Case Study



Jump Start

- ❖ Visit <http://na.blackberry.com/eng/developers/> where you can download the BlackBerry JDE (Java Development Environment) as well as various other tools.

iPhone Applications

Objective C

- ❖ Applications for the iPhone mobile telephone are written in Objective C, the same programming language in use when developing for the Mac OS.
- ❖ The new iPhone model is expected to be released towards mid 2010.

Jump Start

- ❖ Buy a mac. It isn't possible to develop for the iPhone platform without having a mac.
- ❖ Pay a developers fee to apple in order to get the SDK. More info at <http://developer.apple.com/iphone/program/>.

Windows Applications

The .NET Compact Framework

- ❖ Windows Mobile OS is based on Windows CE.
- ❖ Windows Mobile OS market share keeps falling year after year (20% in Q3 2009). Current market share in the smartphones market is 7.9% (1).
- ❖ Windows Mobile OS 7 is expected towards mid 2010.

(1) wikipedia.org, December 2009

Jump Start

- ❖ Buy the visual studio standard or commercial edition. It isn't possible to develop using the visual studio express edition.
- ❖ Visit the Windows Mobile Developer Center at <http://msdn.microsoft.com/en-us/windowsmobile/>.

JavaFX Applications

What is JavaFX?

- ❖ JavaFX is a family of products that enable the development and the deployment of content rich applications on consumer devices such as cell phones, TV, mobile telephones, car systems and web browsers.
- ❖ JavaFX was first announced in Java One 2007. During its early days it was an interpreted language. Today it is a compiled software programming language.

.

Code Sample

```
package com.abelski.samples;

import javafx.stage.Stage;
import javafx.scene.Scene;
import javafx.scene.text.Text;
import javafx.scene.text.Font;

Stage {
    title: "Hello World"
    width: 280
    height: 80
    scene: Scene {
        content: [
            Text {
                font : Font {
                    size : 16
                }
                x: 10
                y: 30
                content: "I love Java, PHP, C# and JavaFX!"
            }
        ]
    }
}
```

Declarative Code

```
scene: Scene
{
  content: [
    Text
    {
      font : Font
      {
        size : 16
      }
      x: 10
      y: 30
      content: "I love Java and JavaFX!"
    }
  ]
}
```

Scene Object

one expression that defines the variable 'scene' and instantiates it with a reference for a Scene object initialized with specific values

Jump Start

- ❖ Download the Netbeans IDE at www.netbeans.org.
- ❖ Visit www.javafx.com. Detailed course can be found at www.abelski.com.

Android Applications

The Android Software Stack



Activities Model

```
public class MyActivity extends Activity
{
    public void onCreate(Bundle savedInstanceState)
    {
        super.onCreate(savedInstanceState);
        TextView tv = new TextView(this);
        tv.setText("Hello World!");
        setContentView(tv);
    }
}
```

XML Based GUI

```
<?xml version="1.0" encoding="utf-8"?>

<LinearLayout
xmlns:android="http://schemas.android.com/apk/res/android"
android:orientation="horizontal"
android:layout_width="fill_parent"
android:layout_height="fill_parent">

<Button android:id="@+id/start_bt"
android:layout_width="wrap_content"
android:layout_height="wrap_content" android:text="Start" />

<TextView android:text="TextView01"
android:id="@+id/TextView01"
android:layout_width="wrap_content"
android:layout_height="wrap_content"></TextView>

</LinearLayout>
```

Jump Start

- ❖ Download the Eclipse Pulsar at www.eclipse.org and install Android SDK + Android Eclipse Plugin. Detailed guidelines at <http://www.lifemichael.com/en/?p=742>.
- ❖ The developers web site is www.android.com. Motorola's developers web site is www.motodev.com.
- ❖ Detailed course can be found at www.abelski.com.

The Future

The Future

- ❖ Location based applications are expected to become highly popular.
- ❖ The web browser will become more dominant. Web based applications will replace installable applications. HTML 5 will play an important role.
- ❖ The Adobe Flash technology will become the driving force for many new applications and services.

The Future

- ❖ Simpler software development tools and technologies will emerge. XML based development will become more popular.
- ❖ The variety of technologies and software programming languages won't change. The driving force is based on business interests.
- ❖ Growing range and variety of new applications and services developed as a mash up of various web services.

Questions & Answers

Thanks for your time:)

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