

# mobile application design

## week 11: Mobile Web & WAP



# The birth of WAP

- The end of the 1990's:
- Data service bearers available: CSD (circuit switched data/dialup)/CDPD
- Data connection speeds: CSD=9.6kbs/  
CDPD=14.4kbs
- Light weight protocol needed to transfer data.



- First generation cellular networks
- Radio signals = analog
- Technologies - AMPS / DataTac
- First Blackberry (850)
- Voice + Limited data



# Enter, WAP

- Enter, WAP, a light weight protocol stage left.
- Good for data speed at that time
- WAP = Wireless Application Protocol
- Like HTTP with extra bits stripped out
- WAP Gateway (GW) handles translation
- Limited markup language resulted in
  - HDML - Handheld Device Markup Language
  - WML (established by the WAP Forum)

2G

1990's-now

- Second generation cellular networks
- Digital.Voice + SMS + Circuit switched data
- GSM, iDEN, CDMA, TDMA



2.5G

1990's-now

- Marketing term
- GPRS, HSCSD, WiDEN
- Also EDGE, CDMA2000 1x-RTT

# WAP 2.0 (circa 2002)

- Data service bearers available: GPRS (54kbs)
- Development of 3G networks leads to enhancement of languages
- WAP 2.0 and XHTML-MP released by the WAP forum.
- Smarter phones + faster data (3G).
- WAP GW resembles typical Proxy Server
- WAP GW is largely for legacy device support (WAP 1.1 devices)

3G

2004-now

- Third generation cellular networks
- Broadband data + voice, streaming video!
- W-CDMA (UMTS, FOMA), 1xEV-DO



4G

the future!

- “high-speed broadband for data- and visual- centric information”
- Transmits data at 100mbps while moving and 1 Gbs while standing still

# WML vs XHTML

	WML 1.x	XHTML-MP
Standards Body	WAP Forum (defunct)	W3C + OMA
Content displaying	Content + layout in same document. Tailored separately for different devices.	Content + layout separate. Can be rendered separately.
Content Encoding	Binary	No encoding required
Document Layout control	Basic	Advanced layout with CSS
Colour control Support	Only colour images, no colour control for fonts, backgrounds, borders etc.	Full support with CSS, fonts, backgrounds, borders
Data bearer	WAP	Wireless profile - TCP/IP



**A word about i-mode**



# i-Mode

- Data service started by NTT Docomo in Japan 1999
- CHTML (Compact HTML)
- Based on HTML 4
- Extremely successful - due to:
  - tight integration of business model + services
  - great rev share for content developers
  - demand for mobile email

Java

WAP

Complex syntax,  
powerful language

Simple syntax, not so  
powerful

Download apps

Use built in browser (no  
download necessary)

```
public class HelloWorld
{
    public static void main (String[] args)
    {
        System.out.println(" Hello, world!");
    }
}
```

<p>Hello, WAP</p>

# Some fun WAP sites

## 1. Flirtomatic

<http://wap.flirtomatic.com/>

## 2. Socialight

<http://m.socialight.com/>

## 3. Winksite

<http://winksite.com/>

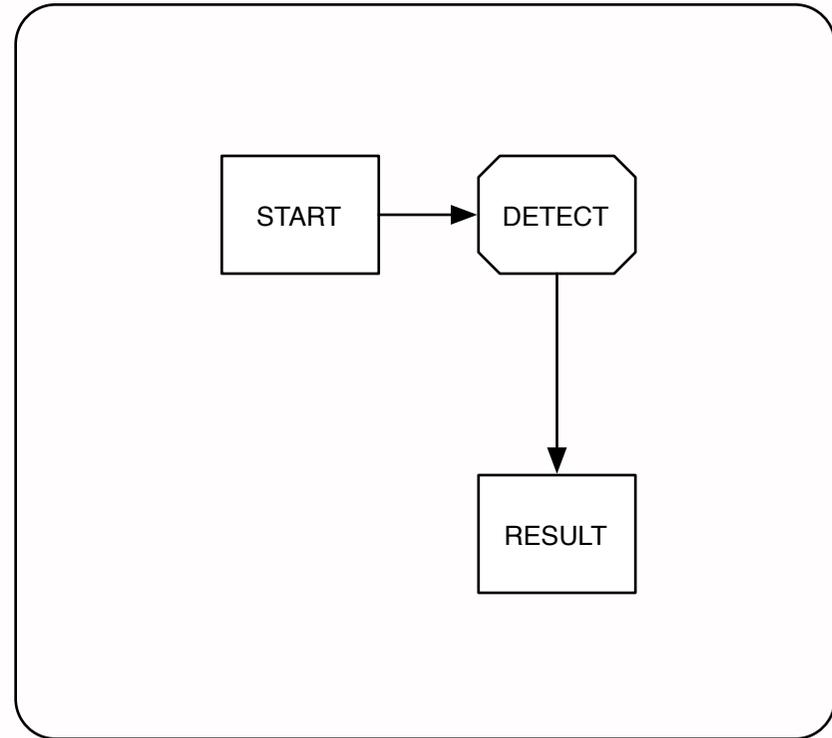
# Presentation

# Writing & Deploying

- **Create .xhtml file in any text editor**
- **Upload to server**
- **Test with emulators / devices / web browsers**

Exercise: Create a quick WAP  
Zombie Detector

- Idea = Zombie Detector
- Platform = Nokia N80
- Wireframes / IA



Zombie Detector IA v0.1

WTAI and WURFL

# WTAI

- Wireless Telephony Applications Interface
- Allows access to phone features
- Called like a URL
- `wtai://<library>/<function> (; <parameter>)* [! <result>]`
  - Make calls
    - `wtai://wp/mc;6465913682`
  - Add to phone book

# Making calls

- specified like a URL
  - WTAI syntax
    - `<a href="wtai://wp/mc;6465913682">Call Mike</a>`
  - tel syntax
    - `<a href="tel:+1-1-646-591-3682">Call Mike</a>`

# WURFL

- Wireless Universal Resource File
- Easy way to identify and distinguish between device types and capabilities.
- Open source, independent effort
- Tools in multiple languages
- Quick and easy setup

Exercise: Enhance your `Zombie`  
Detector with rescue call functionality