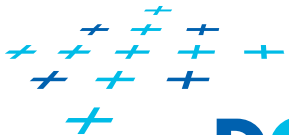


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# PDA

## 1<sup>st</sup> lecture

### Introduction, mobile computing (definitions and limits)



**DCGI**



# Contacts

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M. Jones, G. Marsden: Mobile Interaction Design

- consultation hours: at practices
- course web page: <http://pda.felk.cvut.cz>



# Classification

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## ■ Credits

- min. 40 points
- submitted semester project (D1-D4)
  - min. points per deliverable: 3 b

## ■ Exam

- not mandatory
- min. 10 points

## ■ Points

D1-D4	65 points
exam	35 points
<b>SUM</b>	<b>100 points</b>

## ■ Extra points 5-10

- SIGCHI lectures
- WUD 2011
- max. number of points in semester is 65 p

## ■ Classification

- A ... 90 and more points
- B ... 80 - 89 points
- C ... 70 - 79 points
- D ... 60 - 69 points
- E ... 50 - 59 points

## ■ Consequences

- without exam not better than D



# Semester projects: Overview

- 1 project = 1 student
- mobile device available
  - RIM BlackBerry Curve 8520 (13x)
  - HTC - Android/WP7 (20x)
  - Nokia - Symbian OS (3x)
- development environment
  - BB JDE, Eclipse+plugin, MS Visual Studio
  - simulators
  - real device (limited amount)
- **D1: project description (3p)**
  - **Sun 25.9. 24:00 (+4 hours)**
- **D2: problem description (7p)**
  - Sun 9.10. 24:00 (+4 hours)
- **D3: design I (20p)**
  - Fri 11.11. 24:00 (+4 hours)
- **P1: Presentation – 5 best designs (5p)**
- **D4: design II + final report (30p)**
  - Mon 5.12. 24:00 (+4 hours)
- submission at <http://htcsemestralky.felk.cvut.cz>
- late submissions
  - within 24 hours -20% (D1 -1p; D2 -1p; D3 -4p; D4 -6p)
  - after 24 hours **0 points** => no credits



# Lecture topics

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## ■ Design principles

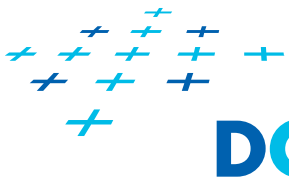
- Usage of the screen space
- User interaction
- Design generally
- Exploiting context

## ■ Development

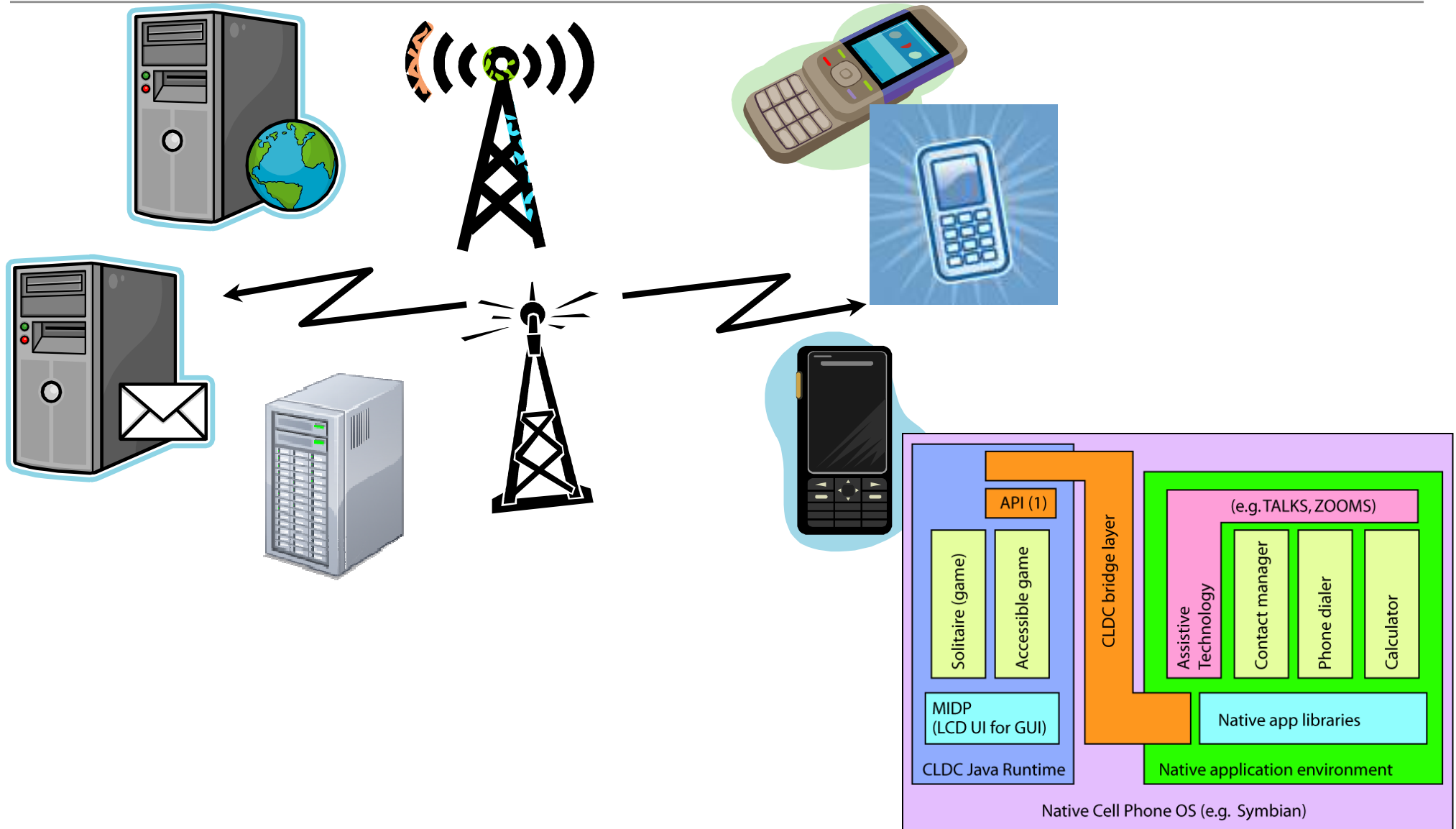
- Java ME
- MS Windows Phone 7
- Android

## ■ Mobile technologies

- wireless communication (WiFi, Bluetooth, GPS, GSM)
- special interaction methods (accelerometers, vibrations, compass, flashing parts of mobile, touch gestures)



# Mobile computing – big picture



# Mobile computing

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- Aspects of mobility
  - user mobility
  - device portability



# Mobile environment

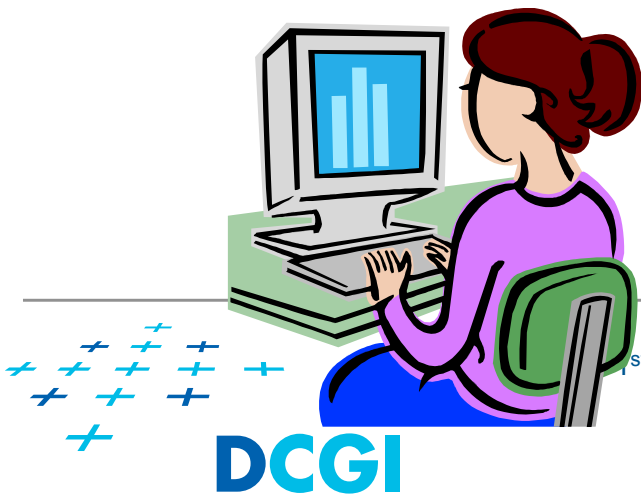
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## Typical environment

- stationary position
- large display
- variety of input devices
- low noise level
- stable lighting condition
- user with no special needs
- do not change in time

## Mobile environment

- changing position
- small display
- limited input devices
- higher noise level
- unstable lighting condition
- user with special needs
- changes very dynamically

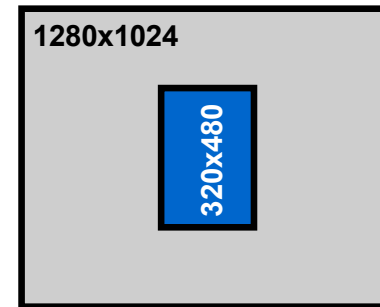




# Inherent characteristics of UI on mobile devices

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- Small screen
  - the biggest smartphones have 8x smaller resolution than typical desktop monitors
- Limited interaction mechanisms
  - small/limited/missing keyboard
  - no mouse cursor
  - limited/missing direct pointing
- Unreliable and slower network connection
  - frequent interruption
  - big latency
  - low bitrate



# Huge variety on the mobile market

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## ■ Type of devices

- sub-notebooks
- TabletPC
- PDA
- smart phone
- mobile phone
- pager
- sensors



## ■ Platforms

- Symbian OS
- RIM BlackBerry OS
- Android
- iPhone
- Windows Phone 7
- others



# Wireless communication

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- Higher loss rate (interference)
- Unreliable
- Varying and higher delay
- Lower transmission rate
- Lower security



# What does it mean mobile for the UI design?

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## DYNAMIC VIEW

- User must handle frequent and unexpected interruption
- User focuses outside the device
  - car navigation
  - construction site management
- Switching between online/offline mode
- Input capabilities varies during work on the task
  - user (noise, gloves, etc.)
  - device (changing/configurable devices)



# Main design problems of mobile UI

## 1. Usage of the screen space

- 1a. Small screen space
- 1b. Flexible user interfaces

## 2. User interaction

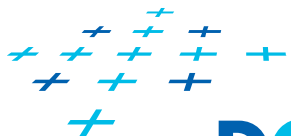
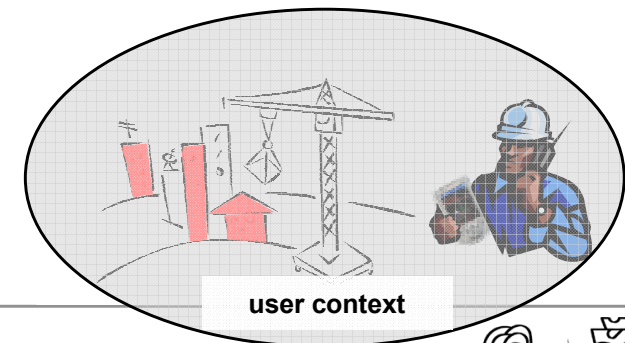
- 2a. Handling the user input
- 2b. Direct pointing (stylus/hand)

## 3. Design generally

- 3a. Guidelines
- 3b. Strange behavior

## 4. Exploiting context

- 4a. frequent changes
- 4b. variety of parameters
- 4c. context driven UI

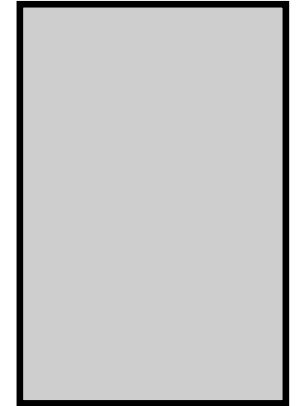


# 1a. Usage of the screen space – small screens

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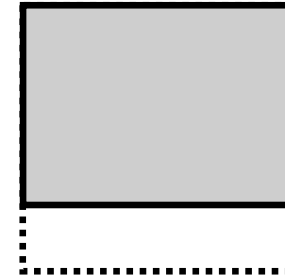
## ■ What is better orientation of the screen?

- portrait vs. landscape
- human way of remembering things
  - short-term memory



## ■ Why is bigger screen better than smaller?

- 320x320 (Palm) than 240x320 (Compaq)?
- user efficiency vs. user satisfaction



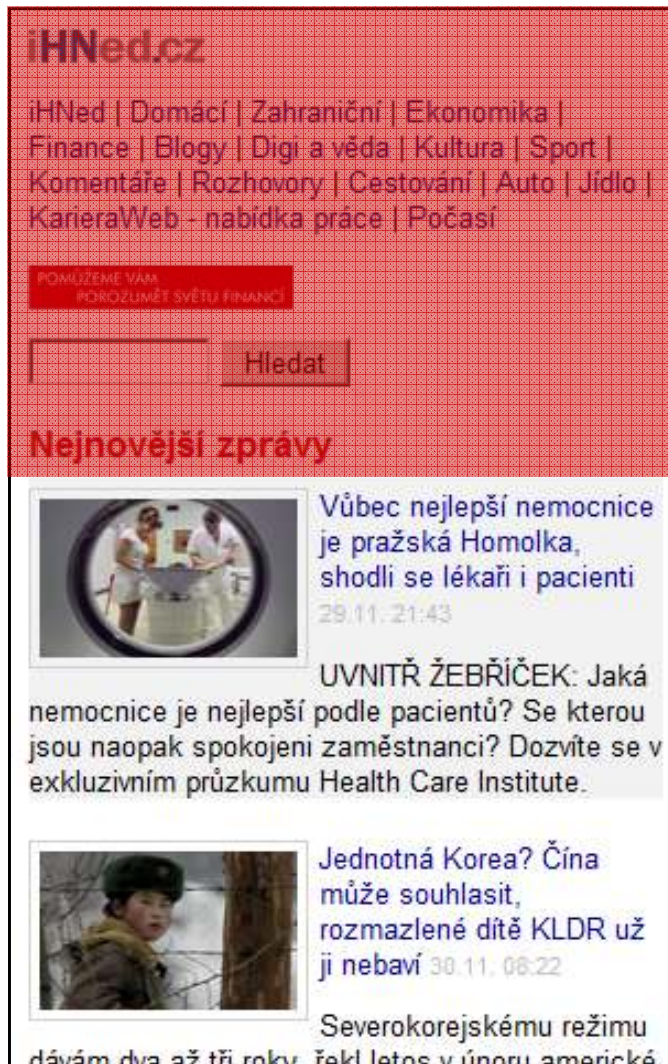
## ■ What about the complex content (News portal)?

- browsing vs. direct answer





# 1a. Usage of the screen space – small screens




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POMŮŽEME VAM  
PONOUMĚT SVĚTU FINANCI

Hledat

**Nejnovější zprávy**

 **Vůbec nejlepší nemocnice je pražská Homolka, shodli se lékaři i pacienti**  
29.11. 21:43

**UVNITŘ ŽEBŘÍČEK:** Jaká nemocnice je nejlepší podle pacientů? Se kterou jsou naopak spokojeni zaměstnanci? Dozvíte se v exkluzivním průzkumu Health Care Institute.

 **Jednotná Korea? Čína může souhlasit, rozmazlené dítě KLDK už jí nebaví** 30.11. 08:22

Severokorejskému režimu dávám dva až tři roky. řekl letos v únoru americké



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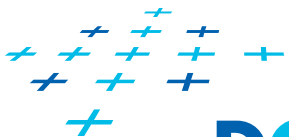
**KarieraWeb.cz**

Hledat

**Nejnovější zprávy**

 **Kalousek chce nabídnout lidem dluhopisy až za 10 miliard korun** 2.12. 10:46

Minimální objem nabízených dluhopisů bude 1000 korun. Nabízet je budou banky a zřejmě Czechpointy. První pilotní emise přide už příští rok



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# Thank you for attention

