Types of Projects and Approaches

ITS400/CSS400 Project Development (Semester 1)

http://ict.siit.tu.ac.th/moodle/

Systems Development

- Senior project normally involves students developing a system
  - Web site or application
  - Mobile application
  - Standalone or networked application
  - Hardware + software system
  - Network + applications
- Other types of projects:
  - Experimental analysis
  - Research study

Two Approaches

- Develop a “new” system
  - Advantage: Valuable output
  - Disadvantage: Hard to convince others it is new
- Replicate an existing system
  - E.g. write a word processor from scratch
  - Advantage: Valuable learning process
  - Disadvantage: Not very “exciting”

General Recommendations

- Your group: 2 people, 2 semesters. Existing systems: multiple man-years of effort
  - Don't try to implement every feature
  - Focus on novel/new features
  - Your project produces a prototype
- Wide search for existing systems
  - Identify their good features and missing features
  - How does your system differ from existing systems?

Web Sites

- Develop a web site/application that does X
- Recommend:
  - Re-use existing components and libraries, e.g. Drupal, Wordpress, Joomla, Django, ...
  - Focus on novel approaches for: interaction, presenting data
  - Consider security of website
  - Populate website with example, representative info

Mobile and Standalone Apps

- Develop a (mobile) app that does X
- Recommend:
  - Select an appropriate platform and development environment
    - BAD: “We chose Java on Windows because that is what we studied”
  - Focus on novel features of the app: use of sensors and external data, interaction with other users, user interface, ...

Hardware and Network Systems

- Build/use a network or piece of hardware
- Recommend:
  - Create a simple application that demonstrates the novel features of the network/hardware
  - Order equipment early; select equipment that will be easy to develop with
    - Doesn't have to be the 'real' equipment you would use if you had a large budget/time

Features that are NOT novel

- "*Existing systems work on [Windows, iOS, ...]; our system works on [Linux, Android, ...]*"
- *"Existing systems are implemented in language X; our system is implemented in language Y"*
- "*Existing systems cost money; Our system is free*"
- "*Existing systems are in English; our system is in Thai*"

Provide Evidence of Novelty

- *"Our system performs better"*
  - Results from experiments that compare performance
- *"Our system is easier to use"*
  - Experiments/surveys of users
- *"Our system has a feature others don't have"*
  - Detailed list/review of other systems
- *"Our system is portable across different hardware/OS"*
  - Test it on different hardware/OS

Convince others that your system ...

- Works as expected
- Contains novel features
- Is complex
- Was well designed, implemented and tested

Smart SIIT

- Improve SIIT operations using technology
  - automate and simplify common/difficult tasks performed by staff, students and faculty
- May require interactions with staff/faculty
- Share resources with other groups (e.g. login)
- Consult with advisor

BS4 SIITChatBot
BU3 SIIT HR system
CN4 Workload Tracking
EN1 Campus Resource Reserver
GS4 Student Admission Status
KW1 Student Forms User Interface
KW2 Student Forms Integration
NH1 School Equipment Auditing System
SG2 Postgraduate Requirements Tracker
SM4 Research Project Manager
SU1 Student Training Management System
TH1 @Where by TU
TT4 Exchange Student Management System
VS1 Smart SIIT Application