Title
Development of new databases for Kettering students

Submitted by:

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1. Summary of Proposed Work

This grant request proposes teach students to acquiring entrepreneurial skills through development of new databases for Kettering students. We choose the lab hours in CS461: Database Systems to perform this grant. The students will come up with their own ideas for developing database to help Kettering students and will following **KEEN entrepreneurship steps** to design, develop and implement them in industrial settings. The output of the grant will be databases with the documentations which will be proposed to be included in Kettering web pages.

Working on the grand the students will become the **Entrepreneurial Mindset** for:

- Curiosity about our changing world
- Integrating information from many sources to gain insight
- Identifying unexpected opportunities to create value

2. Justification

Many of the student information needs are missing from the Kettering web pages. All future students will benefits from the developed databases.

The students will:

- Implement their own ideas following all necessary steps
- Turn their work into real marketing product.

The students will be able to:

- Establish good communication skills: listening, speaking, and writing
- Making decisions with incomplete information
- Sharing the vision
- Understanding organizational structure and corporate culture
- Establish interpersonal skills
- Understanding of the role of management (planning, organizing, directing and controlling)
- Ability to resolve conflict

During the term the students will be involved in:

- Discussion to promote critical thinking
- Brainstorming discussion
- Discussion to summarize and clarify
- New topic discussion
- Role-planning discussion

As a result of applying the grant the students will be skilled to fulfill the KEEN outcome:

1. Productive Collaboration. In the first week the students will studding the community and the University needs for dynamic web applications. They will build an effective and mission-oriented team in the week two.

2. Resolute Integrity. Working on the project will allows the students to identify their personal passions and a start to plan for professional development for dynamic web applications

3. Illuminating Communication. Every week oral and written presentation will allow presenting their solutions in technical and economic terms

4. Multidimensional Problem Solving. Working on the project that they define by themselves will allow applying creative thinking to ambiguous problems

5. Enterprising Attitude. Working on the project in many cases they will make failures, starting with some technology which did give them the best solution. Learn from failure they will find new more effective solution.

The students will learn better the course objectives:

- Students will develop an understanding of the mathematical and theoretical principles of database systems which are fundamental to all application areas of computer science.
- Students will develop an in depth understanding of database systems which is necessary for success in the majority of computer science endeavors.
- Students will develop a database system application in a team framework.

3. Team

Prof. Peter Stanchev
Peter Stanchev is currently professor at Kettering University, Flint, Michigan, USA. He has published 2 books, more than 200 chapters in monographs, journal and conference peer reviewed papers, more than 200 conference papers and seminars, and has more than 1300 citations, h-index = 18, i-10 index = 30, impact factor 75.52. His research interests are in the field of multimedia systems, database systems, multimedia semantics, education and medical systems. He serves on many database and multimedia conference program committees, is currently editor and chief of two international journals, and is also on the editorial board of several journals.

Two students taken the class

4. Proposed Work

4.1 Plan

The proposed plan will be implemented twice in Winter and Spring terms in 2015

	goal	activities
week 1	Presenting the project process	The instructor present the project process, the NABC approach and ask every student to define 1 page in NABC about the project that he/she proposed
week 2	Presenting the students project ideas	Every student presents his/her ideas as NABC. There will be a discussion. As a result groups with similar ideas are created.
Week 3	Presenting the group project ideas	Every group presents the group idea as NABC. There will be a discussion. As a result the final NABC for every group is formulated
Week 4	Presenting the similar solution	Every group present similar solution and why their solution is different from existing. There will be a discussion. As a result a text is prepare outlined the main differences in the proposed project
Week 5	Presenting tools for solving the solution	Every group presents the tools needed for solving the problem. There will be a discussion. As a result the main tools are chosen and text is prepare describing the main tools which will be used.
Week 6	Presenting a detail functional and interface schema	Every group presents detail functional and interface schema of the project. There will be a discussion. As a result the functional and interface schema are approved and text is prepare describing the architecture of the project, functionality and interface and work plan into 2 steps.
Week 7	Step 1	Every group demonstrated the first realized step. There will be a discussion. As a result some of the solutions can be improved
Week 8	Step 2	Every group demonstrated the second realized step. There will be a discussion. As a result some of the solutions can be improved
Week 9	Presenting the prototype	Every group demonstrated the developed prototype. There will be a discussion. As a result some of the solutions can be improved and text with technical specification, end user manual are generated.
Week 10	Demonstration of the project in front	Every group presents the project. A CD with project code, project description and presentation slides are the output of

	of the University community and guests	the project. Discussions about project value and project marketing are taken.

4.2 Learning Outcomes

The students will have:

- **the opportunity to**: define a project; to investing the market: analyzing similar solutions; to create preliminary model; developing functional product
- **the possibility for problem defining:** they will define the project by themselves; formulate the project solution; define how to evaluate the project outcome in terms of technical feasibility, customer value, societal benefits, economic viability;
- **ability to design and system engineering of a product:** they will validate the market interest of the developed product
- **communicate an engineering solution in economic and societal benefits terms:** the students will establish communication with different groups for solving the project problems
- **develop collaborative methods:** they will work in groups
- **creating project management, software engineering, business and marketing skills**

Course learning objectives:

Each student who receives credit for CS461 will have demonstrated the ability to do all of the following tasks:

- Use a model to design a database system from user specifications.
- Analyze memory accesses utilizing various physical storage mechanisms.
- Write queries in SQL.
- Normalize a database system.
- Implement a simple database system.

4.3 Deliverables

Deliverable	Description	Format	Date	Name
Item	Short description	e.g. document, report, video, etc.	Date to be uploaded	or initials
NABC	NABC description of the projects	CD with documents	April 15 and June 30, 2015	P.S.
Project documentation	Include: Project description, Entity – Relationship schema, Presentation Slides, Examples, User manual	CD with documents	April 15 and June 30, 2015	P.S.

Software	Software packages and instruction for use	CD with software	July 30	P.S.

4.4 Timeline

Project Start	December 10, 2014
Preparing materials for the course	December 2014
Applying the grant in CS461: Database Systems	January 2015-April 2015
Applying the grant in CS461: Database Systems	April 2015-June 2015
Prepare the delivery	June 2015-August 2015
Project Completion	August 30, 2015