

Software Plan

Requested by: Dr. Darren Lim
Associate Professor of Computer Science
Siena College
Department of Computer Science

Dr. Tim Lederman
Professor
Siena College
Department of Computer Science

Web Organization & Registration Management System

TRACE Technologies

Prepared by: Alyssa Nghiem
Chris Small
Eduardo Pinto Barbosa
Ryan Kennedy
Tyler Vorpahl

September 21st, 2012

Software Plan

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1. System Definition

1.1 Problem Definition

Each year the Consortium for Computing Sciences in Colleges – North East (CCSNE) holds a conference which includes events such as the presentation of scholarly works and a programming competition. The task of gathering the necessary information from the various types of participants and organizing such a conference is challenging. There is currently no integrated system that provides registration for conference attendees, submission and review of scholarly works, and access important details about the conference. Dr. Darren Lim, an organizer for an upcoming CCSCNE conference, has expressed the need for a single integrated and easy to use web based system that is capable of providing these functions for CCSCNE conference attendees.

1.2 System Justification

The purpose of this system is to provide an easy to use platform for managing the registration and scholarly work submission for a CCSCNE conference. Such a system will improve the experience of people registering, submitting, and reviewing works for a conference. The system will also simplify the duties of conference organizer such as Dr. Darren Lim.

1.3 Goals for the System and Project

The goal of this project is develop a web based software system that allows CCSCNE conference attendees to easily register, submit scholarly works, and review scholarly works for a conference. The system will be easy for organizers to configure and for attendees to register for.

1.4 Constraints on the System and on the Project

- Compatible with current releases of major browsers.
- User information must be stored securely.
- Reviewers must be anonymous, validated by organizers, and may not review works from their own school.

1.5 Functions to be Provided (Hardware & Software/people)

- Conference attendee registration
- Provide access to general conference information
- Scholarly work submission and review
- Reviewer verification
- Automated selection of appropriate reviewers for submitted works

1.6 User Characteristics

Users of this system will be conference attendees, submitters, and reviewers. The system will provide one consistent interface that allows users to register for one or more applicable roles in the conference. Conference organizers will also need a simple interface that allows them to perform administrative tasks for the conference.

1.7 Development/Operating/Maintenance Environments

▪ Development

The development environment for this software will include all hardware and software available in the software engineering lab as well some of our own personal machines. See section 2.3 for specs.

▪ Operating

The operating environment for this software will be any Mac or PC that has internet capability, access our server, and a current release of a major browser.

▪ Maintenance

The maintenance environment will consist of the same hardware and software used to create our software.

1.8 Solution Strategy

Our team will follow a modified Waterfall model in order to fulfill all requirements and document our progress as requested by our client, Dr. Darren Lim. This model (seen in more detail in section 2.1) includes the following steps:

- Define and Obtain Requirements
- Development of Preliminary Design
- Development of Detailed Design
- Implementation of Software
- Testing the Software System
- Installation and Maintenance of System

1.9 Priorities of System Feature

It is important that this system assigns submitted scholarly works to reviewers from different schools anonymously and that each reviewer is assigned fewer than some predefined number of works. The system must also securely store user information.

1.10 System Acceptance Criteria

The system must include the following features:

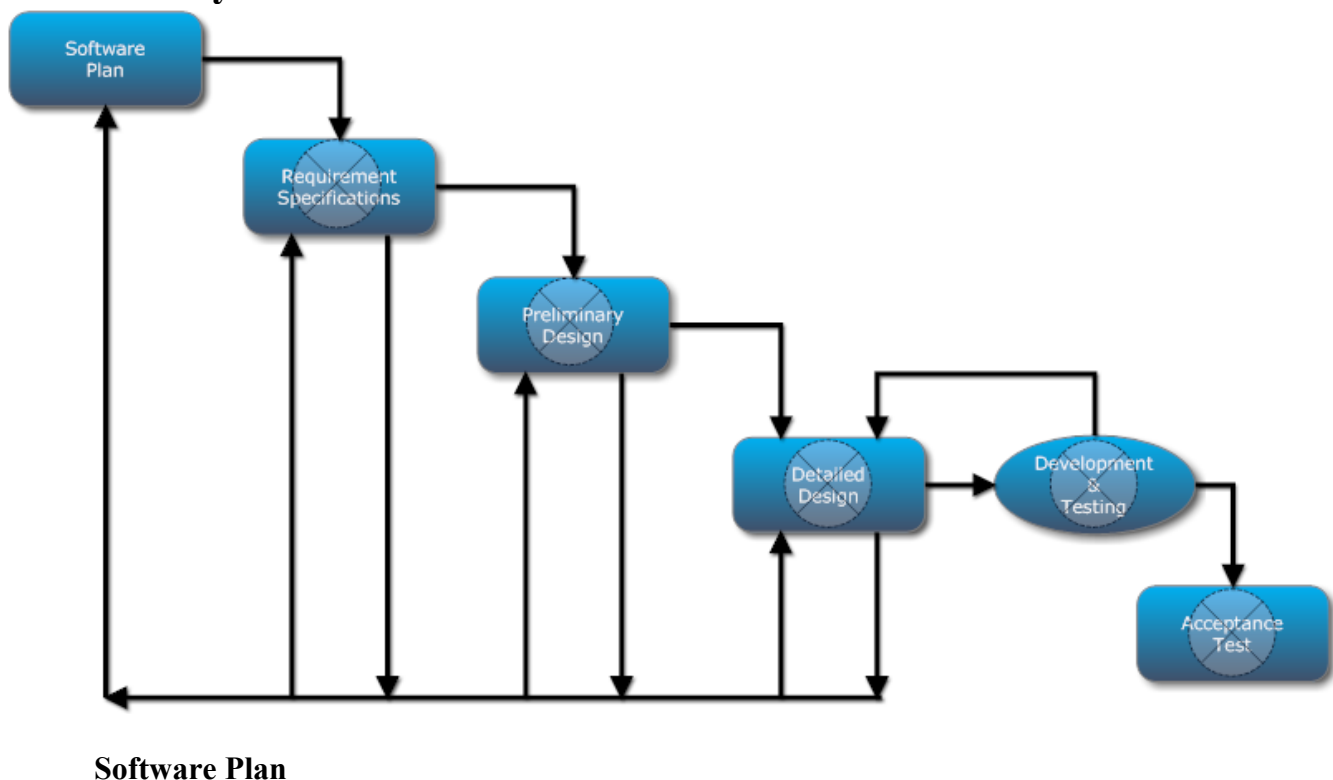
- User registration for various roles
- Submission of different types of works
- Submitters must be able to view the status (reviewed/not reviewed) of submitted works
- Assignment of submissions to reviewers
- Verification of reviewer credentials by conference organizers
- Secure login
- Important information about the conference must be available through the system

1.11 Sources of Information

Client meetings with Dr. Lim will be the primary source of information for this project. Web sites for previous CCSCNE conferences will provide additional details about the features that must be available to users. Dr. Lederman's lectures will provide information about the process that will be used to develop the system software.

2. Project Plan

2.1 Life-Cycle Model



Determine the problem that must be solved and establish the goals that must be met for successful completion of the project.

Requirements Specification

Develop a thorough understanding of the features and functionality required of the software system to be developed.

Preliminary Design

Create an initial design for the user interface and data structures of a software system that will fulfill the previously determined requirements.

Detailed Design

Refine the preliminary design and generate a detailed description of the user interface and software architecture that will be present in the final system.

Development and Testing

Develop and test the code required for the system that has been designed.

Acceptance Test

Ensure that the system that has been developed functions properly and meets the requirements that have been previously specified.

2.2 Organizational Structure

TRACE Technologies is made up of the following team members:

Name	E-mail	Phone Number
Alyssa Nghiem	aa30nghi@siena.edu	808-429-4360
Chris Small	cj01smal@siena.edu	518-469-5871
Eduardo Pinto Barbosa	e30pint@siena.edu	516-710-2489
Ryan Kennedy	rp3lkenn@siena.edu	518-210-3799
Tyler Vorpahl	tt15vorp@siena.edu	518-321-1800

TRACE Technologies team members will have the following roles

Team Leader: Chris Small

Coordinates the team and ensures that work is properly distributed and done on time. Manages client meetings, team meetings, and tracks team progress and productivity.

Lead Graphic Designer: Tyler Vorpahl

Creates graphics and logos, advises on the design of presentations and web pages.

Document Analyst: Eduardo Pinto Barbosa

Manages all team documents and meeting notes for both internal records and client deliverables.

Web Master: Alyssa Nghiem

Designs and maintains the team website in the aspects of both content and style.

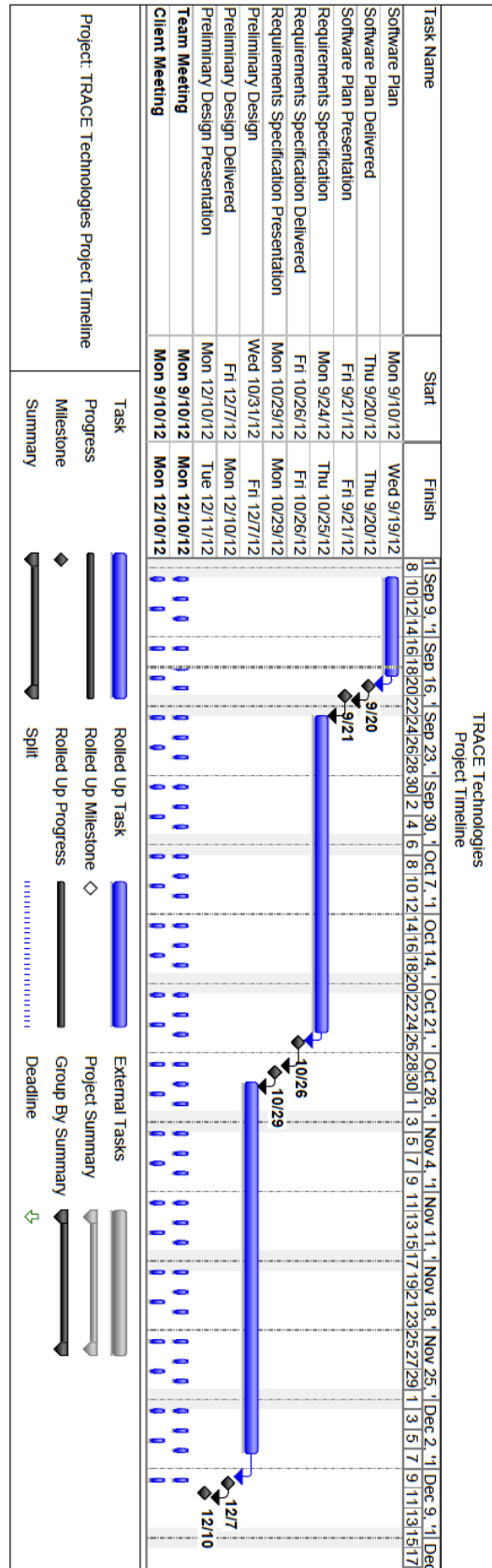
Lead Developer: Ryan Kennedy

During the initial phases of the project, the lead developer is responsible for advising the team on technical aspects of the software system that will be developed.

2.3 Development Environment

- SE Lab hardware
- Dell ACP x86-based PC
 - Operating System: Windows Vista Enterprise
 - RAM: 4 GB
 - Processor: Intel Core 2 Duo 2.93GHz
- Apple iMac 21.5 inch
 - Operating System: 10.7.4 Lion
 - RAM: 4 GB
 - Processor: Intel Core i5

2.4 Preliminary Development Schedule



2.5 Project Monitoring and Control Mechanism

The team will meet several times per week throughout the course of the project in order to monitor progress and discuss any decisions that must be made. Regular meetings with the client will provide feedback for any decisions that have been made or for any new documents produced. Major milestones in the project will be accompanied by presentations to the client.

2.6 Tools and Techniques to Be Used

Oracle SQL Server will be used for data storage. The Eclipse development environment will be used to develop the necessary software components. Apache web server will be used for the web server. A modified Waterfall model will be used to manage the project itself.

2.7 Programming Languages

The web application will be built using HTML, JavaScript, and CSS on the client side. PHP and potentially other server side scripting languages or Java will be used as needed to build the server side of the web application.

2.8 Testing Requirements

The user interface for the web application will be thoroughly and regularly tested for consistency and any functionality flaws. Backend components will be tested both independently and for proper integration with the user interface. Security testing will be conducted to ensure that the application is safe and can be trusted by its users.

2.9 Supporting Documents Required

The following documents will be provided to the client as demonstrations of the team's progress and design direction:

- | | |
|-------------------------------|--------------------|
| 1. Project Plan | September 20, 2012 |
| 2. Requirements Specification | October 26, 2012 |
| 3. Preliminary Design | December 7, 2012 |
| 4. Detailed Design | Spring 2013 |
| 5. Acceptance Test | Spring 2013 |

2.10 Manner of Demonstration and Delivery

Presentations will be delivered and documents will be provided to the client in order to demonstrate the progress and state of the project. The presentation dates are as follows:

- | | |
|-------------------------------|--------------------|
| 1. Project Plan | September 21, 2012 |
| 2. Requirements Specification | October 29, 2012 |
| 3. Preliminary Design | December 10, 2012 |
| 4. Detailed Design | Spring 2013 |
| 5. Acceptance Test | Spring 2013 |

2.11 Sources of Information

Client meetings with Dr. Lim will be the primary source of information for this project. Web sites for previous CCSCNE conferences will provide additional details about the features that must be available to users. Dr. Lederman's lectures will provide information about the process that will be used to develop the system software.

Appendices

Appendix A: Team Résumés

Tyler T. Vorpahl

4714 State Route, Argyle, New York 12809

tt15vorp@siena.edu

(518) 321-1800

QUALIFICATIONS

- Prior leadership experience as a Cadet in US Army ROTC program, assigned Company Commander during 2011 Fall and Spring semester responsible for leading 25 Cadets.
- Proficient in computer software applications including Microsoft Office, Adobe Photoshop, Web Application Development (familiar with PHP, HTML with CSS); Programming (Java).
- Confident oral and written communication skills complimented by excellent time management.
- Strong experience in sales and tactful customer interaction with a strong work ethic and drive.

EDUCATION

Siena College, Loudonville, New York
Computer Science Major

Anticipated Graduation May 2013

Siena College Army ROTC, Loudonville, New York

Anticipated Commission May 2013

US Army Second Lieutenant, Commissioned Army Officer

PROFESSIONAL EMPLOYMENT

Owner/President, **USA Virtual Solutions and Sales**, Argyle, New York

2006 - Present

- Provide a wide range of services dealing with online virtual goods and gaming including automated in-game programs, as well as sales of virtual goods, and client development.

Webmaster/Sales Associate, **Dog Ate My Homework**, Glens Falls, New York July 2007 - 2011

- Maintained website and social media networks as well as processing orders from distributors. Gained extensive communication and sales skills dealing with customers face to face.

COURSES

- Data Structures
- Object Oriented Programming
- Analysis of Algorithms
- Artificial Intelligence
- Discrete Structures I & II
- Military Leadership, 101; 102; 201; 202; 301; 302; 401

COMMUNITY SERVICE

Certified Foster Brother, Queensbury, New York

January 2009 – Present

Alyssa Nghiem
7 Dutch Village Apt. #BR
Menands, New York 12204
(808) 429-4360
aa30nghi@siena.edu

Education

- **Siena College**, Loudonville, New York
- Bachelor of Science, Computer Science, May 2013
- Dean's List Fall 2010

Related Experience

- *Webmaster*, Software Engineering Team Siena College (Loudonville, NY) (September 2012 – present)
 - Maintained team and project website
- *Information Technology Services Consultant* ITS Siena College (Loudonville, NY) (January 2011 – present)
 - Resolved computer software for students and faculty
 - Assisted customers through the telephone
- *Shift Manager, Cashier, Sushi Chef* Kozu Sushi (Honolulu, HI) (October 2007 – 2009)
 - Interacted with customers and co-workers
 - Resolved disputes and concerns for both employees and customers
 - Trained new employees
- *Computer Science Tutor*, Siena College (Loudonville, NY) (January 2012 – present)
 - Tutored students in CS courses 110 and up

Related Course Work

Data Structures, Object Oriented Programming, Database Management, Analysis of Algorithms, Assembly Language and Computer Architecture, Discrete Mathematics, Web Applications, Software Engineering

Computer Skills

- **Languages** (X)HTML, C/C++, Java, Machine Code
- **Software** MS Office, Excel, BlueJ, Python
- **Hardware** UNIX, Ubuntu, Windows, Macintosh
- Group member of Siena Robotics Tour Guide using Ubuntu
- Program Ticket to Ride board game

Siena Community Services/Activities

- *President*, Asian Students Association (2012 – present)
- *Vice-President and Co-founder*, Polynesian Cultural Club (2011 – present)
- *Public Relations Officer*, Asian Students Association (2010 – 2012)
- *Siena Mentor*, Siena Mentoring Program (2009 – present)

Christopher Small

26 Tanner Circle Slingerlands, NY 12159

518-469-5871

cj01smal@siena.edu

Qualifications

- Demonstrated achiever, with exceptional knowledge of Apple and Windows products.
- Strong inter-personal skills with significant retail and customer service experience.
- Skilled at learning new concepts quickly. As well as working well under pressure and in a team, and communicating ideas clearly and effectively.

Education

Siena College, Loudonville, NY. Anticipated graduation May 2013

Computer Science Major with a Biology Minor

Software Experience

Linux, Mac OS X, Windows, Word, Excel, PowerPoint, Java, Alice, BlueJ, Eclipse, NetBeans, Python, Firefox, Safari, Internet Explorer, Google Chrome, Visual Studio 2010, IBM RAD.

Related Course Work

Intro to Computer Science, Intro to Programming, Data Structures, Object Oriented Design, Analysis of Algorithms, Assembly Language and Computer Architecture, Discrete Structures I & II, Database Management, Robotics, Software Engineering.

Work Experience

Team Leader, Siena College Software Engineering, Loudonville, NY, Fall 2012

- Ran a team of 4 students on the preliminary design phase of a year-long client based software engineering project.

Java Programmer, Computer Sciences Corporation, Menands, NY, January 2012-Present

- Was assigned numerous tasks in a variety concentrations beyond Java, including some web based programming and regression testing.
- A good introduction into a real world office setting, in terms of attending meetings and collaborating with my fellow employees to finish projects.

Student ITS Consultant, Siena College, Loudonville, NY, Fall 2011-present

- One of the first to be brought on to the newly developed branch of the help desk.
- Started in September and had completed 60+ help requests from fellow students and faculty by December.
- Great experience working and interacting with an end user.

Computer Science Tutor, Siena College, Loudonville, NY, Fall 2011-present

- Group and individual tutoring for all computer science classes 110 and above.

Activities

Intramural football, Car Restoration, Intramural soccer, Volleyball, Videogames, Programming

Ryan Kennedy

(518) 210-3799

16 Bayberry Drive, Castleton, NY 12033

rp31kenn@siena.edu

Education

Siena College, Loudonville, NY

B.S. Computer Science with Mathematics minor, May 2013

Cumulative GPA: 3.93

Computer Science GPA: 4.00

Awards: President's List (Fall 2011, Spring 2012), Dean's List (Fall 2010, Spring 2011)

Skills

- Proficient in Java, C, and C++
- Some experience with SQL, Python, PHP, JavaScript, and others
- Multithreading and socket programming in Java and C
- GUI programming in Java and C++
- Familiarity with web application development
- Very comfortable in Windows and Linux environments

Professional Experience

- **Software Development Intern**, *GlobalSpec*, East Greenbush, NY (June 2011 – present)
 - Implemented improvements and bug fixes in the Java search backend for GlobalSpec's websites
 - Used multithreading to drastically reduce the time required to run a weekly data processing job
 - Mined usage data from website logs for use in directing new features
- **Software Development Intern**, *X-ray OpticalSystems*, East Greenbush, NY (Summer 2011)
 - Aided in porting C++ software from Windows to Linux
 - Implemented memory-saving modifications to computationally intensive scientific software
 - Created a GUI application with C++ and for use in debugging software
- **PC Repair Technician**, *Greenbush Computer Fare*, Castleton, NY (May 2010 – May 2012)
 - Performed software and hardware repairs for Windows PCs
 - Customer service

Relevant Course Work

Data Structures, Object Oriented Programming, Database Management, Analysis of Algorithms, Computer Architecture, Discrete Mathematics, Operating Systems, Computer Graphics, Theory of Computation, Communications and Networks, Software Engineering

Other Activities

- ACM Preliminary Programming Competition 2010 & 2011
- ACM Northeast Regional Programming Competition 2011

Eduardo Pinto Barbosa

515 Loudon Road Loudonville, NY 12211 SPOB 4442

(516) 710-2489

e30pint@siena.edu

EDUCATION

University of Brasilia, Brasilia, Distrito Federal – Brazil

Software Engineering, March 2009 – December 2013

Siena College, Loudonville, New York

Exchange Program - Computer Science, September 2012 – August 2013

EXPERIENCE

Software Engineering Research Group, Volunteer Researcher, December 2009 – September 2011.

- Proposed a software process development architecture definition based on Capability Maturity Model Integration (CMMI).

- Researched software process definitions and Rational Unified Process (**RUP**) understanding.

- Learned Project Planning, Requirements Elicitation and Analysis, SCRUM agile methodology.

Software Development Project “ThreeDs”, Team Leader, April 2011 – March 2012.

- Followed all phases and documentation of an iterative and evolutionary development process.

- Published article in III Science and Technology Encounter - FGA, Gama, DF. October 2011.

EMBRAPA, Instructor and consultant. Brasilia, Distrito Federal, Brazil, August – September 2011

- Instructed project leaders, consulted on their major project utilizing **Eclipse Process Framework (EPF)**.

CTIS, Instructor. Brasilia, Distrito Federal, Brazil, June 2011

- Taught project leaders **EPF** - A framework to develop software development process.

ADDITIONAL EXPERIENCE

Software Engineering, Document Analyst – Siena College, Latham, NY. September 2012- Present

Christian Club, Leader, January 2011 – July 2012.

- Coordinated weekly meetings, led discussions and studies about the Bible among Christians on campus.

Tutoring Program, Tutor, January 2010 – December 2011.

- Tutored students in the follow subjects: Introduction to Programming, Object-Oriented, Database Systems.

SCHOLARSHIPS AND AWARDS

Science Without Borders Exchange Program – Full scholarship sponsored by Brazilian government. Siena College, Loudonville, New York, July 2012 – August 2013.

Presented Article at a Brazilian National Conference - XXXII Brazilian Computing Society Congress, July 2012.

- Title “Data Dictionary for Database Projects Teaching Proposal”.

REUNI scholarship – A project to support science education, April 2011 – March 2012.

LANGUAGE AND COMPUTER SKILLS

- Fluent in Portuguese and English.

- Techniques: Database Design (ER), SQL, UML Diagrams, HTML and Software Specification.

- Operating Systems: Unix/Linux, Windows.

- Programing: Java, C, C++, and Python.

Appendix B: Glossary of Terms

CCSCNE – Consortium for Computing Sciences in Colleges — North East

CSS – Cascading Style Sheets – used to style web pages

Eclipse – an integrated development environment for building various types of software

HTML – HyperText Markup Language – used to layout web pages

Java – a general purpose object oriented programming language

JavaScript – scripting language that is usually run on web pages within a browser

Oracle SQL Server – relational database management system

PHP – sever side scripting language used in web applications

Scholarly Works – papers, posters, workshop proposals, and other types of conference submissions

SQL – Structured Query Language – used for database access

Web Application – an application accessed by users over the Internet