

Software Plan

Proposed Project:

Dynamic Network Device Mapping System

Clients:

Mr. Ken Swarner
School of Science Senior Systems Administrator
Siena College

Mr. Eric Crossman
School of Science Systems Administrator
Siena College

Delivered By:

SKYNET Software

The SKYNET Software Team:

Kevin Fealey
Heimdall Imbert
Stephanie Maloney
Trevor March
Andrew Warner

September 21st, 2007

Dynamic Network Device Mapping System (DNDMS)

Software Plan

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System Definition

1.1 Problem Definition:

Our clients, Mr. Ken Swarner & Mr. Eric Crossman, require software that will allow them to access information from anywhere in the world. They're going to use this software to help them maintain hardware throughout the Morrell and Roger Bacon buildings on the Siena College campus. They currently do not have any method of verifying any pertinent information outside of their office. Our clients have very outdated and inefficient methods of obtaining information so they have requested that we, SKYNET Software, provide them with a network mapping application that will allow them to access this data from anywhere.

1.2 System Justification:

The Dynamic Network Device Management System will aid our clients by saving them time and energy. Both Mr. Swarner and Mr. Crossman will be able to troubleshoot from anywhere with internet access and will be able to troubleshoot quicker and in a more efficient manner. Also, our clients will be able to locate any stray devices or know if/when new devices have been added to the network, in which case they may revoke or allow access.

1.3 Goals for the System and on the Project:

We aim to create a manageable web application that can be accessed via the web from anywhere in the world. The application should have a floor plan (as accurate as possible) that will give the user an idea of where network devices are placed.

The software must be both flexible and extensible so that it can adapt to changes in the network configuration.

The goal for the team is to expand and make use of all of the knowledge that we have attained throughout our undergraduate studies and any of our Computer Science related extracurricular activities. We hope to use this as a learning experience and learn how to interact with others in a professional setting. We also desire and surpass the expectations of our clients.

1.4 Constraints on the System and on the Project:

Our clients have stressed the importance of having a map or floor plan of some sort. This creates a constraint in that we will have to use dynamic images (versus static images) for our application. Because we will be dealing with dynamic images, there is an added constraint of having the software interpret the changes on the fly (as opposed to rewriting or hard coding the current available floor plan).

1.5 Functions to be Provided:

- Web-based application (written most likely in PHP & JavaScript) will allow our clients to access and modify information with the touch of a button.
- Graphical representation of the floors and rooms our clients maintain. The room layouts will contain information about machines in the room.
- A web server (most likely Apache) will be used to host any and all pages and web application(s).
- A database (most likely MySQL) will store important information from all network devices. This includes but is not limited to: MAC Addresses, IP Addresses, Device location, the person/people the device is registered to, etc.
- A search option will be provided to help our clients look up information quickly.

1.6 User Characteristics:

The main users of this software will be Ken Swarner and Eric Crossman. Faculty members with offices in Roger Bacon or Morrell Science Center will also have access to this software application but will only see their own office on the floor plan.

1.7 Development/Operating/Maintenance Environments:

The DNDMS will be developed using the Siena College Software Engineering workstations provided to us. The operation of this software will be available to Ken Swarner, Eric Crossman, and other faculty members who have offices in Roger Bacon or Morrell Science Center. The software will run on a web server hosted internally by the Ken Swarner. Therefore, this system should be available from anywhere with access to the internet and a web browser. The maintenance of this software will be determined at a later time.

1.8 Solution Strategy:

We will be forming a solution our clients' needs using a Linear Sequential Model known as The Waterfall Model, which includes the following steps:

- **Software Plan:** The Team meets with the client and develops an idea of the problem, as well as a means to go about solving it.
- **Analysis:** Further meetings with the client define the problem more specifically in order to develop the necessary requirements for the project.
- **Preliminary Design:** Using the requirements specified in the Analysis stage, fundamental design for code is prepared.
- **Detailed Design:** The basic coding design is altered and improved and machine code is written. This will be done in Spring Semester 2007.
- **Acceptance Test:** The software is installed and set up for the client. This will also be done in Spring Semester 2007.

1.9 Priorities of System Feature:

The most important feature of this system is its ability to dynamically generate floor plan images for all floors in Roger Bacon and Morrell Science Center. These floor plans will show icons for all devices connected to the network and allow Administrators to manipulate each device from a graphical user interface. Another important feature of this system is its accessibility. Because this system will run on a web server, it should be able to be accessed from anywhere in the world with an internet connection and web browser. Also this software will include two types of accounts, Instructor and Administrator, which were set up by last year's Software Engineering team. Instructors will be able to see their own office on the floor map, and Administrators will be able to see all of Roger Bacon and Morrell Science Center. Administrators will have a toolbox to aid in reconfiguring the components connected to the network via a GUI within the DNDMS. Instructors may not make changes to the network configuration directly, but may request a change of an Administrator.

1.10 System Acceptance Criteria:

The system will be able to accomplish the following:

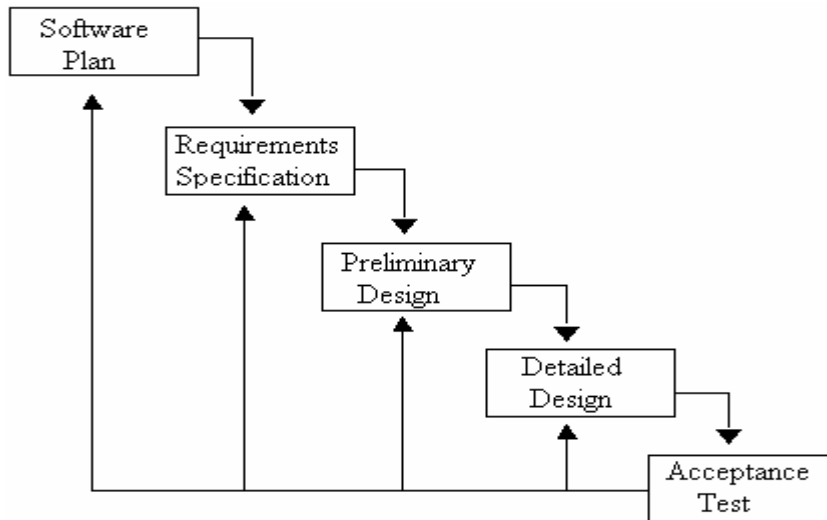
- Give Administrators access to view and change network mapped information from anywhere in the world via a web connection
- Give Instructors the ability to view their own network mapped devices in their own office.
- Dynamically generate a floor plan image with all connected network devices displayed.
- Ability for Administrators to ping any network device shown on the floor plan image.
- Display a toolbox so that Administrators can easily modify the floor maps.

1.11 Sources of Information

The information used for the System Definition was collected through meetings with our clients, Mr. Ken Swarner and Mr. Eric Crossman. Other sources of information include Dr. Lederman's class lectures, the Software Engineering class textbook, Software Engineering: A Practitioner's Approach, 6th Edition, by Roger S. Pressman, as well as Software Plans created by Software Engineering students in the past.

2.1 Life-Cycle Model

Our project is modeled after the Waterfall method.



Software Plan

Defines the problem and establishes goals and requirements to solve that problem.

Requirements Specification

Team establishes a better understanding of the requirements needed to complete the project

Preliminary Design

The first steps taken to translate the requirements for the project into software representation.

Detailed Design

Preliminary design code is produced and prepared for testing.

Acceptance Test

Conclude the Life Cycle Model with final testing and delivering of the product to the client.

2.2 Organizational Structure

SKYNET Software is comprised of the following members:

<u>Name</u>	<u>E-mail</u>	<u>Phone Number</u>
Fealey, Kevin	kw26feal@siena.edu	(516) 458-3653
Imbert, Heimdall	hb09imbe@siena.edu	(917) 596-6974
Maloney, Stephanie	ssm8591@siena.edu	(518) 859-5199

March, Trevor P. tmarch@siena.edu (518) 813-2353
Warner, Andrew as29warn@siena.edu (518) 598-9364

The team members are organized in the following positions:

Fealey, Kevin - Team Leader
Imbert, Heimdall - Systems Administrator
Maloney, Stephanie - Documentarian
March, Trevor P. - Webmaster
Warner, Andrew – Systems Analyst

The team structure of SKYNET Software is Democratic. All of the decisions will be decided by majority vote. The team leader will be the tiebreaker in the decisions.

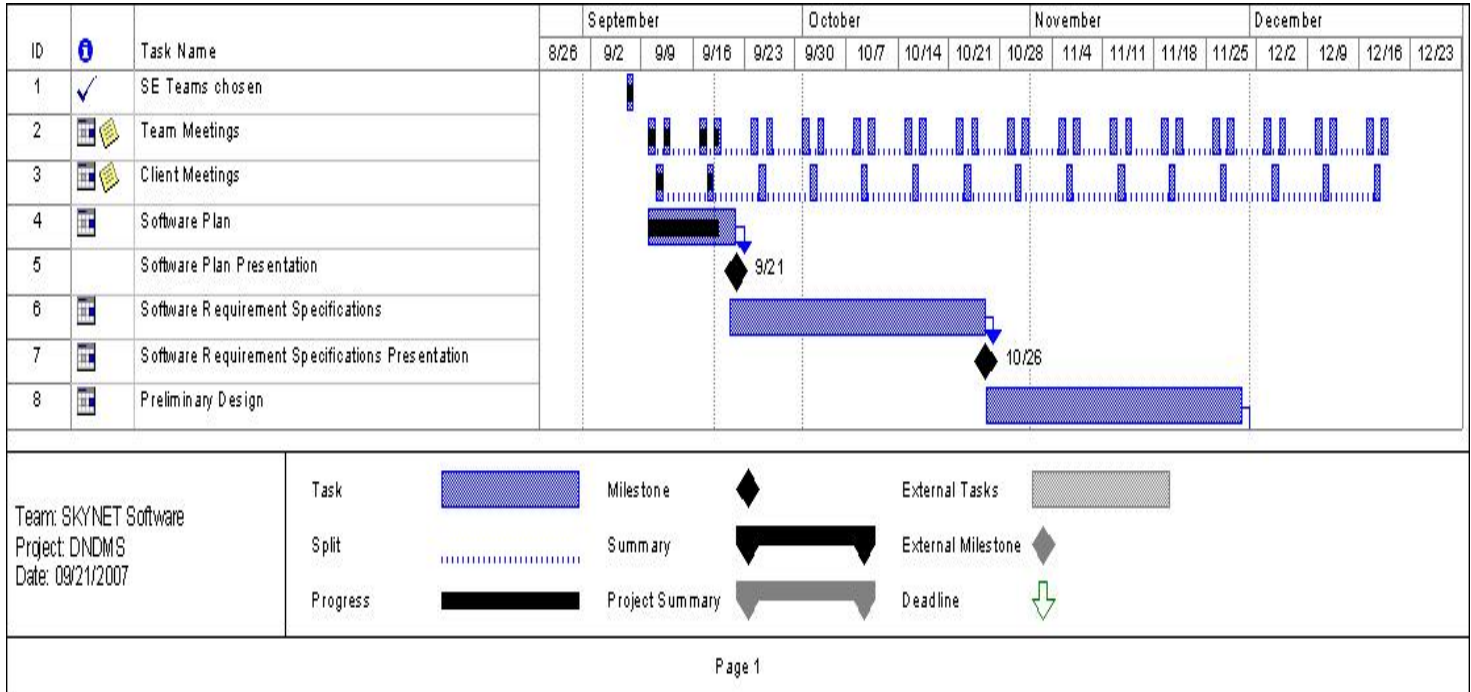
The work assignments for each member are as follows:

<i>Team Leader</i>	Organizes team and client meetings and guides the team throughout the semester.
<i>Systems Administrator</i>	Maintains user accounts for the team and is responsible for software installation and administration.
<i>Webmaster</i>	Creates and maintains the project web page.
<i>Documentarian</i>	Responsible for compilation and organization of documentation related to project work.
<i>Systems Analyst</i>	Analyzes and manages team data. Handles miscellaneous project related assignments.

2.3 Preliminary Staffing and Resource Requirements

Our team will need to utilize various hardware, software, and human resources. The hardware needed includes computer systems, a Dell computer running Windows XP and a MAC, running OS X. The software needed includes Dreamweaver, Fireworks, Flash, and Oracle. Our human resources include Mr. Eric Crossman, Assistant Systems and Operations Manager, and Mr. Ken Swarner, Systems & Operations manager for the School of Science, as well as Dr. Tim Lederman, our Software Engineering Professor. Finally, we will be utilizing spreadsheets listing information about the computers in each building, along with floor maps of the buildings we will be tracking computers in.

2.4 Preliminary Development Schedule



2.5 Project Monitoring and Control Mechanisms:

In addition to the client meetings taking place at least once weekly, the project team members will also meet as needed to discuss the state of the project and the necessary steps that the team and each individual must take to advance productivity. To ensure that the project is on the proper track and that it corresponds to the needs of the clients, the members of the SKYNET Team will analyze the clients' responses to the team's presentations of the Problem Definition/Project Plan, Software Requirements Specifications and Preliminary Design. Our system will be continuously tested over the course of the development process. If it is discovered by either the project team or the clients that our system is not sufficiently meeting the clients' needs, we will make the necessary actions to correct the problem to keep the client satisfied.

2.6 Tools and Techniques to be used:

Computers with Microsoft Project will be used for creating timelines. To build the DNDMS, our team will be using Macromedia Dreamweaver, Macromedia Fireworks, and a PHP editor. As the project progresses, any other tools and techniques that the team feels will best fit the clients' needs, may also be used.

2.7 Programming Languages:

In order to complete the School of Science Network Map, the project team will use Java, PHP, HTML, CSS, and MySQL. Any other programming language that the team feels will best fit the clients' needs may also be used.

2.8 Testing Requirements:

There will be extensive testing of the system during the entire development process. Both the project team members and the clients, Mr. Swarner and Mr. Crossman, will partake in the testing.

2.9 Supporting Documents Required:

We will provide supporting documentation to our clients on the following dates:

1. Problem Definition/Project Plan - September 21, 2007
2. Software Requirement Specifications - October 22, 2007
3. Preliminary Design - November 26, 2008

2.10 Manner of Demonstration and Delivery:

Throughout the project development process, we will give several demonstrations. The demonstrations will consist of PowerPoint presentations, speeches, and handouts. The goal of each presentation will be to display what we have accomplished with the project development and to make sure that it corresponds to the clients' goals and expectations. Presentations will occur on the following dates:

- 1) Problem Definition/Project Plan - September 21, 2007
- 2) Software Requirement Specifications - October 26, 2007
- 3) Preliminary Design - November 30, 2007

2.11 Sources of Information:

The information used for the Project Plan will be collected through meetings with our clients, Mr. Ken Swarner and Mr. Eric Crossman. Along with these, information was obtained from Dr. Lederman's lectures, from the Software Engineering textbook Software Engineering: A Practitioner's Approach by Roger S. Pressman, as well as Software Plans created by Software Engineering students in the past.

3.1 Glossary of Terms:

C++: A programming language used for developing object oriented programs.

DNDMS: Dynamic Network Device Mapping System, the name of SKYNET Software's premiere application.

HTML: Hypertext Markup Language (HTML) is programming language used in the creation of Web pages.

JavaScript: JavaScript is a scripting language developed by Netscape that can interact with HTML source code, enabling Web authors to spice up their sites with dynamic content.

Linear Sequential Model: Sometimes called the *classic life cycle* or the *waterfall model*, this model suggests a systematic, sequential approach to software development that begins at the system level and progresses through analysis, design, coding, testing, and support.

PHP: PHP hypertext preprocessor is a widely-used general-purpose scripting language that is especially suited for web development.

MySQL: An open source relational database management system (RDBMS) that uses Structured Query Language (SQL), the most popular language for adding, accessing, and processing data in a database.

Software: Written programs, procedures, or rules and associated documentation pertaining to the operation of a computer system and that are stored in read/write memory.

3.2 Team Resumes:

KEVIN FEALEY

18 Admiral Road Massapequa, NY 11758 (home address)
384 Congress Street, Troy NY, 12180, Apt 9 (school address)
516 458-3653 (cell) kfealz@gmail.com

Objective: To obtain a professional position that will utilize and develop my skills.

Education: **Siena College**, Loudonville, NY
B.S. Computer Science, May 2008
GPA: 3.31; Computer Science: 3.35

Computer Skills:

Skilled in troubleshooting Windows 2000, Windows XP, and computer hardware issues
Proficient in all Windows Versions, Linux, Microsoft Office, Internet, installing and maintaining networks

Skilled in Visual Basic, C++, and Java Programming Languages

Proficient in website design and construction using HTML, CSS, and PHP

Related Experience:

- 09/07-05/08 **Team Leader**, CSIS-410: Software Engineering, Siena College
- Organize design and construction of large scale software project
- 05/07-08/07 **Intern**, EMC Corp. New York, NY
- Prepared presentations about EMC products
 - Installed and repaired enterprise storage machines
- 07/06-09/06 **Trainer**, Child Safety Enterprises, Inc. Deer Park, NY
- Hire and train new employees
 - Organize marketing and sales events
- 09/05-present **Computer Lab Assistant**, Siena College, Computer Lab
- Support computer science faculty and students
- 06/05-09/05 **Orientation Leader**, Siena College
- Collaborated and participated in Freshman Orientation Program
 - Coordinated group meetings to aid student's adjustment to campus
- 09/04-as needed **Clerk**, Siena College, Follet Bookstore
- Assist students with acquisition of textbooks
- 10/03-08/04 **Manager**, Fatpipe Computer Gaming Center, Massapequa, NY
- Maintained computer network and managed day-to-day operations
 - Organized events such as tournaments and all night LAN parties
- 10/01-09/03 **Waiter**, Waffle House Restaurant, Seaford, NY

Military Experience

- 09/04-05/06 **Cadet**, United States Army ROTC, Siena College, Loudonville, NY
- Participate in physical training
 - Practice fundamentals of leadership and basic training

Other Experience:

Judicial Board Advocate, Siena College Office of Student Affairs
Ambassador, Siena College Admissions, Siena College, Loudonville, NY
Member, Board of Directors, Long Island Crisis Center, Bellmore, NY
Counselor Assistant, Long Island Crisis Center, Bellmore, NY
Stage Technician, Chaminade High School, Mineola, NY

Stephanie M. Maloney
580 Boght Rd
Cohoes, NY 12047
(518)859.5199; ssm8591@siena.edu

OBJECTIVE

To obtain a career in the field of computer science.

EDUCATION

Siena College, Loudonville, NY
BS in Computer Science, December 2007
GPA 3.11/4.0

RELEVANT COURSES

Software Engineering I, Web Design, Analysis of Algorithms, Object-Oriented Design and Programming, Assembly Language and Computer Architecture, Procedural, Data Structures, Introduction To Computer Science, Introduction To Programming, Intro to Computer Applications, Advanced Database, Database Application for Business

PROGRAMMING LANGUAGES

Visual Basic, Java, HTML, PHP, JavaScript, CSS, SQL, MySQL, Flash

DATABASE MANAGEMENT SYSTEMS

SQL Server, Microsoft Access, Oracle

RELEVANT EXPERIENCE

Siena College, *Independent Study, Advanced Web Development*, Fall 2007

- Coordinate with Dr. Eric Breimer, Computer Science Webmaster and Dr. Dean Amadeo, Psychology Professor, in creating a module for IAT surveys
- Creating a Flash based website to administer the surveys

Siena College, *Librarian, Software Engineering I*, Fall 2007

- Attend client and team meetings and document key points and send communications to all members of the team
- Work in a team of 5 people to construct a detailed design for the School of Science Network Map

ADDITIONAL WORK EXPERIENCE

Eckerd/Rite Aid, *Photo Lab Technician*, December 2006 - Present

- Develop pictures using Noritsu film development and printing machines
- Develop and print digital photographs using the iPixel digital program
- Perform photo lab duties in addition to customer service associate duties listed below

Eckerd/Rite Aid, *Customer Service Associate*, October 2001 – December 2006

- Assist customers at register
- Improve communication skills by interacting with customers in active store environment

Trevor P. March

Current Address:

111 Rossman Road
Stuyvesant, New York 12173

Email: tmarch@siena.edu
Cell Phone: (518) 813-2353

OBJECTIVE

To obtain a challenging position in the field of Computer Science.

EDUCATION

Siena College, Loudonville, NY
B.S. in Computer Science, May 2008

COMPUTER EXPERIENCE AND RELEVANT COURSE WORK

- Programming in C++, Visual Basic, Java, Assembly and C.
- Proficient with Microsoft Office Package and Internet Explorer.
- Introduction to Computer Science (Visual Basic), Introduction to Programming (C++, Java), Data Structures, Assembly Language, Computer Architecture, Object-Oriented Design and Programming, Analysis of Algorithms, Database Management, Web Design, Software Engineering I, Computer Graphics, Calculus I and II, Discrete Structures I and II.

RELEVANT EXPERIENCE

Webmaster, Siena College, Software Engineering I, Loudonville, NY, September 2007 – Dec. 2007

- Design and maintain company website.
- Attended weekly team and client meetings.
- Followed principles of Software Engineering to provide documentation in the creation of a system for our client.

Computer and Network Technician I, Siena College– Loudonville, NY, August 2003 – October 2006

- Perform installation of new computers, both PC and MAC.
- Install and maintain new hardware and software.
- System maintenance and troubleshooting of hardware and software.
- Ghost new/blank machines with appropriate images and roll machines out to users.

Computer and Network Technician, Hudson River Bank & Trust - Hudson, NY, 2001 – 2003

- Train and support new hires.
- Ghost new/blank machines with appropriate images and roll machines out to users.
- Install, uninstall and repair software and hardware on user's machines'.

Computer and Network Technician Intern, Hudson River Bank & Trust, Hudson, NY, June 2000 – 2001

Computer and Network Technician Intern, Hudson City School District, Hudson, NY, Sep 2000 – Dec 2000

Computer and Network Technician Intern, Ichabod Crane School District, Hudson, NY, Sep 2000 – Dec 2000

Computer and Network Technician Intern, Catskill High School District, Hudson, NY, Sep 2000 – Dec 2000

Computer Science Tutor, Columbia Greene Community College, Hudson, NY, 2000 – 2002

ADDITIONAL EXPERIENCE

Security Officer, Siena College, Loudonville, NY, October 2006 – Present

- Respond to emergency calls
- Enforce College rules and regulations including parking enforcement
- Prepare written reports of incidents, investigating accidents and criminal complaints

Heimdall Imbert
2709 Heath Ave Apt 6E
Bronx, NY 10463
Home Phone: (718)884-2840, Cell Phone: (917) 596-6974
Email: hb09imbe@siena.edu

Objective:

To obtain an internship or a job in the field that will utilize my skills.

Education:

Siena College, Loudonville, NY
Bachelor of Science in Computer Science, May 2008

Relevant Courses:

Computer Science: Database Management, Software Engineering, Analysis of Algorithms, Object Oriented Design & Programming, Web Design, Operating Systems, Gender in Computer Science, Assembly Language & Computer Architecture, Advanced Programming Techniques, Data Structures, Introduction to Computer Science, Introduction to Programming, & Problem Solving with Spreadsheets.
Mathematics & Physics: Data Structures 1, Data Structures 2, Calculus II, Calculus I, Preparation for Calculus, Introductory Electronics, Digital Electronics.

Computing & Language Skills:

Computing: Experience with Java, C++/C, Visual Basic, HTML, PHP, CSS, JavaScript, SQL, MIPS Assembly, Macromedia Flash, Macromedia Dreamweaver, Macromedia Fireworks, Microsoft Office, Various distributions of Linux, & Various versions of Windows (95/98/NT/2K/XP)
Language: Fluent in Spanish.

Work Experience:

Student Consultant, Information & Technology Services, Siena College (06/2007-Present)

- Aid students needing help in computers labs.
- Checking to make sure printers have paper.
- Taking calls in Call Center.

Systems Administrator, Software Engineering Team Project, Siena College (09/2007-Present)

- Maintenance & backup of all team documentation.
- Maintenance & updates of team computer.

Webmaster, Office of Multicultural Affairs, Siena College (2005-Present)

- Update and maintain all of the pages owned by Multicultural Affairs.
- Research and add relevant material to the site.
- Work alongside club heads to update their pages.

Lab Assistant, STEP/MASTER, Bronx, NY (2004-Present)

- Instruct high school age students alongside a high school teacher.
Worked with the Lego Robolab software and the RIS Lego Mindstorms kits.
- Researched various projects to implement into the summer course.
- Taught the kids some basic programming concepts

Extracurricular Activities:

Webmaster, Gay/Straight Alliance, Siena College, Loudonville, NY (2005-Present)

Webmaster, Word of Mouth, Siena College, Loudonville, NY (2005-Present)

Webmaster, XPZ, Siena College, Loudonville, NY (2005-Present)

Webmaster, Asian Student Association, Siena College, Loudonville, NY (2006-Present)

Member, Witt @gency, Dewitt Clinton HS, Bronx, NY (2001-2004)

Andrew S. Warner
E-Mail: as29warn@siena.edu

Present Address:

Siena College, SPOB 3355
515 Loudon Road
Loudonville, NY 12211
(518) 782-6248

Permanent Address:

15 Spruce Run
East Greenbush, NY 12061
(518) 479-3933

OBJECTIVE

I am looking for an internship in the field of mathematics. This will allow me to obtain valuable experience in my field and help further my abilities in mathematics.

EDUCATION

Siena College, Loudonville, NY
B.S. in Mathematics and Computer Science May 2008
Overall GPA of 3.46
GPA in Mathematics 3.58
GPA in Computer Science 3.38

COMPUTER EXPERIENCE

MS Word, MS Excel, MS PowerPoint, Visual Basic, Java, C++

RELEVANT COURSE WORK

- **Computer Science:** CSIS 110 (Introduction to Computer Science), CSIS 120 (Introduction to Programming), CSIS 210 (Data Structures), CSIS 220 (Assembly Language and Computer Architecture), CSIS 310 (Numerical Methods), CSIS 380 (Computer Graphics), CSIS 385 (Analysis of Algorithms), CSIS 401 (Web Design), CSIS 410 (Software Engineering I)
- **Mathematics:** MATH 110 (Calculus I), MATH 120 (Calculus2), MATH 191 (Foundations of Mathematics I), MATH 210 (Calculus III), MATH 230 (Linear Algebra), MATH 250 (Discrete Structures), MATH 310 (Introduction to Modern Algebra), MATH 320 (Mathematical Analysis), MATH 391 (Foundations of Mathematics II), MATH 392 (Foundations of Mathematics III), MATH 340 (Introduction to Number Theory), MATH 350 (Discrete Structures II), MATH 490 (Cryptology)

RELEVANT WORK EXPERIENCE

Student Employee, New York State Teachers' Retirement System, Albany, NY, Summer 2005

- Review retirement data and statistics for retired teachers.
- Use PeopleSoft software to modify existing member information or add new member information.
- Collate large pools of data and filing.

Student Consultant, Information & Technology Services, Siena College, September 2004 – Present

- Solve software and hardware problems with student and staff computers.
- Network support.
- General maintenance of school computers and printers.

ACTIVITIES

- *MENSA member*, August 2005 – present
- *Treasurer Computer Science Club, Siena College*, September 2005 – May 2006
- *President Computer Science Club, Siena College*, September 2006 – Present
- *President Pi Mu Epsilon (Math Honor Society), Siena College*, September 2006 – Present
- *Student Senate Technology Committee, Siena College*, September 2007 – Present