

# Software Plan

*Requested By:*

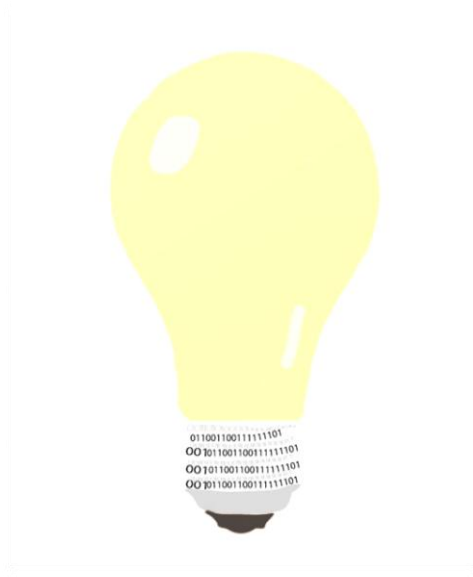
Dr. Darren Lim

Associate Professor

Siena College

Department of Computer Science

## Hobby Information Tracker Hobb-IT



Presented by

**Illumination Technologies**

*Prepared By:*

Karl Appel

Connor Blakely

Jackie Hausmann

Bryan Leicht

Katie Sitaro

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# Software Plan

## 1.1 Problem Definition

As online shopping becomes an ever expanding market, consumers are continually faced with a variety of new vendors offering the same merchandise. More than ever, hobby enthusiasts are employing the internet to buy and sell their goods. Illumination Technologies' client, Dr. Darren Lim, has requested that Illumination Technologies develop a program which can provide live updates on changes in prices of *Magic: The Gathering* playing cards. Dr. Lim would like Illumination Technologies to collect data from a selection of online websites. Also, the client would like the system to be able to store and track the prices of the same item from day to day. The system, the Hobby Information Tracker (Hobb-IT), would also be able to compare how the price of one card varies between retailers.

## 1.2 System Justification

Hobb-IT will be able to provide the client with an easy to navigate interface which can store and categorize an abundance of data. By collecting this data in one location the user is able to evaluate the current market value for their collectables. Hobb-IT will save the client valuable time while still ensuring the best possible prices viewed. This allows the user to determine the most advantageous time to buy.

## 1.3 Goals for the System and the Project

The goals of this system will be to parse the same information from a variety of websites to a singular database which can then classify the data. Once the user has passed the login security, Hobb-IT should be able to provide the user with a choice for which Magic card prices will be displayed. In addition, Hobb-IT will scrape each of the websites given to Illumination Technologies by the client once a day for the prices of all stored cards. The system should be able to keep track of what cards each user has already purchased, searched for, or hopes to track. Also, the system will be able to ignore any cards which are listed as out of stock on a website, as well as any card in less than near-mint condition. As an advanced goal, Hobb-IT will be able to intelligently interpret the data and project an ideal time to buy a specific card.

## 1.4 Constraints

- Hobb-IT must be able to scrape data from Safari, Internet Explorer, Chrome, Firefox
- Our database will be stored on Siena's oraserv account and follow all college guidelines for database usage
- Follow all legal procedures for obtaining data from an online source
- Our GUI will be programmed to display for a 1024x768 resolution

## 1.5 User Characteristics

### *Administrative Account*

- Change how information is parsed and cataloged into the database

### *User Account*

- Query searches for new merchandise
- Access a list of past searches
- Access price history graphs
- Modify lists of bought, watching, and hope to track cards

## **1.6 Development/Operating/Usage/Maintenance Environments**

### *Development:*

The development of this software will take place within the software engineering lab and development documents will be available on Illumination Technologies' Team Google Drive as well as Illumination Technologies' website. In addition Illumination Technologies will use the Olsen server and all specifications listed in section 2.3.

### *Operating:*

The operating system for Hobb-IT will take place on the Olsen server but will be accessible via a web interface designed for the user to manage data.

### *Usage:*

Hobb-IT will be accessible via a web interface that will be supported by the browsers Google Chrome version 29+, Mozilla Firefox version 23+, Internet Explorer version 10+, and Safari version 10.5.7+.

### *Maintenance:*

The Maintenance environment will be located on the Olsen servers and will be accessible to the user via the web interface that is supported by the usage of Hobb-IT. In addition there will also be a way to manually access the program from the Olsen server.

## **1.7 Solution Strategy**

Illumination Technologies will use an altered version of the Waterfall model in order to ensure that all the requirements and documentation are satisfactory to the client, Dr. Lim. This model includes the following steps:

- Define specific requirements
- Create a preliminary design
- Create a detailed design
- Implement software for testing
- Install finished version of software

## **1.8 Priorities of the System Features**

The main purpose of Hobb-IT will be to track the price of Magic cards on a variety of websites and display which website has the lowest price. The system will be able to track the prices of Magic cards on a regular basis and the condition associated with each card. In addition there should be a graphic display of the price information associated with each card. The system should be able to support multiple user account types as required by the client.

## **1.9 Project Acceptance Criteria**

Hobb-IT will implement the requirements that were specified by our client listed below:

- User friendly web interface
- Maintenance capability
- General and specific website scrapers
- Intelligent information handler

## **1.10 Sources of Information**

Below is a list of companies and their websites given to Illumination Technologies by the client:

Troll and Toad ([trollandtoad.com](http://trollandtoad.com))

Dave and Adam ([dacardworld.com](http://dacardworld.com))

Star City Games ([starcitygames.com](http://starcitygames.com))

Card Kingdom ([cardkingdom.com](http://cardkingdom.com))

Titan Collectables ([titancollectables.eocrater.com](http://titancollectables.eocrater.com))

Black Boarder ([blackboarder.com](http://blackboarder.com))

Channel Fireball ([store.channelfireball.com](http://store.channelfireball.com))

Old School Gaming ([oldschoolgaming.net](http://oldschoolgaming.net))

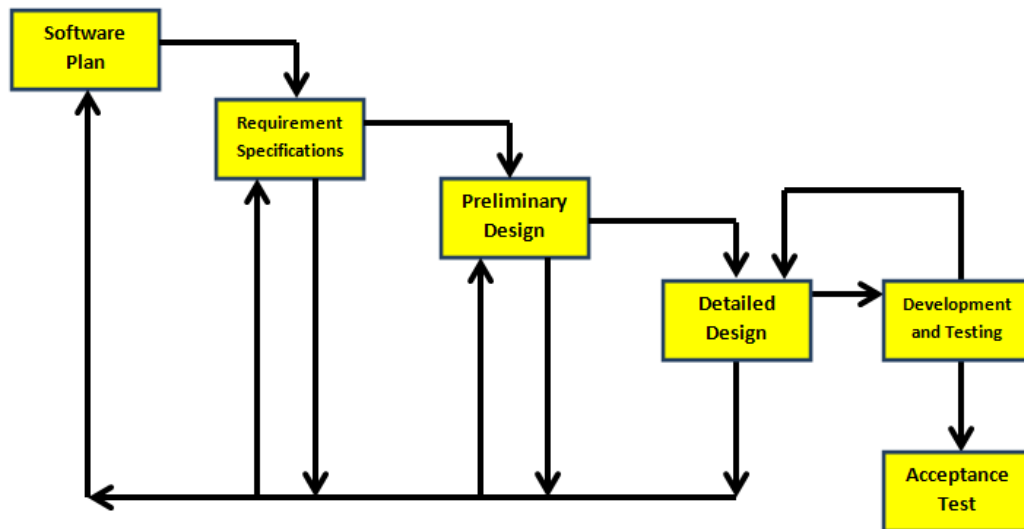
C&C Games ([ccgames.net](http://ccgames.net))

White Lion Games ([whiteliongames.com](http://whiteliongames.com))

The Collector's Friend ([tcf.cc](http://tcf.cc))

# Project Plan

## 2.1 Life-Cycle Model: Waterfall Model



*Software Plan:* Illumination Technologies will clearly define the problem of the client, Dr. Lim, through client and team meetings. Illumination Technologies will then use this information to establish a plan of action for a successful and efficient solution.

*Requirements Specifications:* Evaluate the details of the client's problem and develop a more complete understanding of what software will be used.

*Preliminary Design:* Illumination Technologies will draft a basic design of Hobb-IT and its user interface that encompasses all the details for the stated problem.

*Detailed Design:* Upgrade the basic design into a more detailed depiction of what will be seen within the final version of Hobb-IT.

*Development and Testing:* Develop the detailed design into a working system that will be tested and evaluated for further improvement.

*Acceptance Test:* Present the final version of Hobb-IT that meets the requirements of Dr. Lim.



## 2.2 Organizational Structure

Illumination Technologies is made up of the following individuals:

Karl Appel	<a href="mailto:km25appe@siena.edu">km25appe@siena.edu</a>	(631) 827-9956
Connor Blakely	<a href="mailto:cj13blak@siena.edu">cj13blak@siena.edu</a>	(518) 813-5298
Jacqueline Hausmann	<a href="mailto:ja05haus@siena.edu">ja05haus@siena.edu</a>	(518) 231-3611
Bryan Leicht	<a href="mailto:bm28leic@siena.edu">bm28leic@siena.edu</a>	(518) 488-9161
Katherine Sitaro	<a href="mailto:km11sita@siena.edu">km11sita@siena.edu</a>	(860) 462-1852

### **Karl Appel: Team Leader**

Team Leader manages the group to ensure that all tasks are completed thoroughly and on time.

The team leader also sets up client and team meetings and follows up on team productivity.

### **Connor Blakely: Head Developer**

Head Developer is in charge of bringing together different aspects of the software system and advising the team on those details.

### **Jacqueline Hausmann: Database Administrator**

Database Administrator is in charge of creating and maintaining the database used for the software system.

### **Bryan Leicht: Information Specialist**

Information Specialist is in charge of keeping track of all team documents and making sure they are readily available for team use. The Information Specialist also helps with the management of data.

### **Katherine Sitaro: Web Developer**

The Web Developer is in charge of creating and maintaining the team website. This includes updating the website to include all completed team documents.

## 2.3 Development Environment

### *Server:*

Operating System: CentOS 5.2, Kernal 2.6.18-92e15

Server Name: oraserv.cs.siena.edu

CPU Type: Intel Xeon 2.66 GHz

Memory: 8GB Memory

### *Macintosh Computer:*

Operating System: OSX Version 10.7.4

Model: Mac

Processor: Intel Core i5 @ 2.5Ghz

Memory: 4GB 1333 MHz DDR3

HD Size: 500GB

### *Windows Computer:*

Operating System: Windows Vista

Model: Dell

Processor: Intel Core 2 Duo E7500 @ 2.93GHz

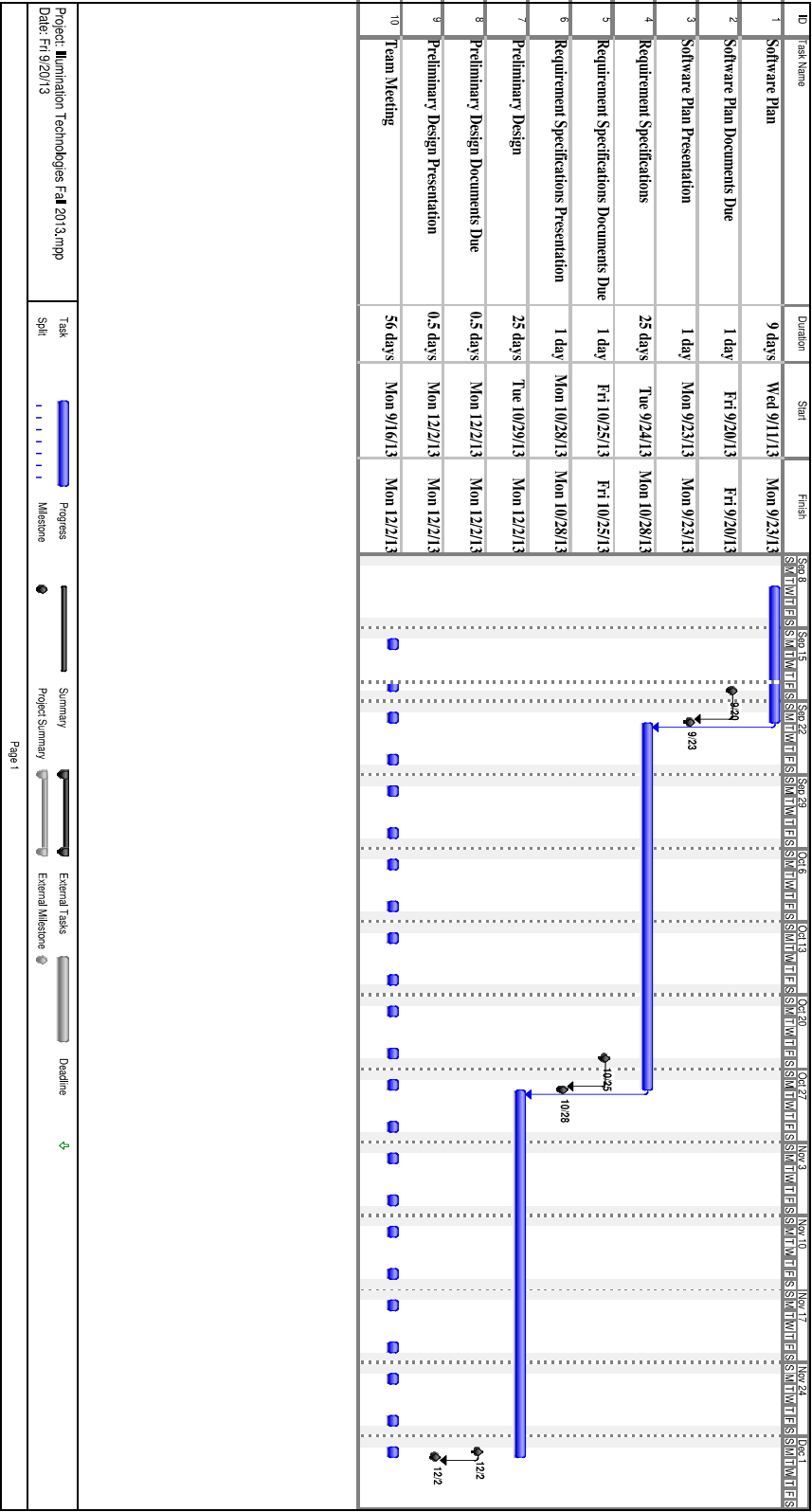
Memory: 4.00 GB

HD Size: 297GB<sup>1</sup>

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<sup>1</sup> Sunny Solutions, Guest Registration Advancement.(G.R.A.S.S.), 2012,  
[http://oraserv.cs.siena.edu/~perm\\_sunny/documents/Software\\_Plan.pdf](http://oraserv.cs.siena.edu/~perm_sunny/documents/Software_Plan.pdf)

2.4 Preliminary Development Schedule



## **2.5 Project Monitoring and Control Mechanisms**

In order to meet all deadlines and remain on schedule, Illumination Technologies will meet as a team at least twice per week and will meet with the client at least once per week. These regular meetings will allow Illumination Technologies to stay on track and keep the team updated on what each individual is working on. Illumination Technologies will also use email and other forms of messaging to keep in touch and provide status updates. Illumination Technologies will ensure client requirements are met through client feedback. Project milestones will be presented to the client in a formal presentation.

## **2.6 Tools and Techniques**

Illumination Technologies will be using Java and PHP for development and SQL for database storage. The Olsen Server will be used as the working server. Additional software may be used as a design is developed. Illumination Technologies will use design and coding techniques learned in previous computer science courses and will supplement that knowledge with additional research as necessary.

## **2.7 Programming Languages**

Illumination Technologies plans to use Java, SQL, HTML, CSS, and PHP in the development of Hobb-IT. Additional programming languages may be used if necessary.

## **2.8 Testing Requirements**

Illumination Technologies will be performing regular testing for bugs and functionality issues throughout the design and testing processes. Testing will include proper functionality, UI design, and any additional components that are included in Hobb-IT.

## 2.9 Supporting Documents Required

Illumination Technologies will be presenting project milestones to our client. The following list shows the milestones and their corresponding presentation dates:

Software Plan	September 23, 2013
Requirement Specifications	October 28, 2013
Preliminary Design	December 2, 2013

The Detailed Design and Acceptance Test will be completed in the spring of 2014.

## 2.10 Manner of Demonstration and Delivery

1) Project Definition/Project Plan Document	September 20, 2013
2) Project Definition/Project Plan Presentation	September 23, 2013
3) Software Requirement Specifications Document	October 25, 2013
4) Software Requirement Specifications Presentation	October 28, 2013
5) Preliminary Design Document	December 2, 2013
6) Preliminary Design Presentation	December 2, 2013

# **Team Member Resumes**

## **Karl M. Appel**

Siena College  
515 Loudon Road SPOB 4445  
Loudonville, New York 12211  
E-mail: [km25appe@siena.edu](mailto:km25appe@siena.edu)  
Phone Number: 631-827-9956

### **EDUCATION**

Siena College, Loudonville, NY  
B.S: Computer Science Expected Graduation 5/2014  
Minor: Business  
Computer Science GPA: 3.86  
Overall GPA: 3.64

### **EXPERIENCE**

Nfrastructure Intern Web Developer Clifton Park NY, June 2013-September 2013  
Siena College Innovation and Entrepreneurship Team Fall 2011 – present  
Siena College Institute of Artificial Intelligence (SCIAI) Fall 2011-Spring 2013  
Senior Student Research Member, STIRS Summer Employment Research Team June 2011– Spring 2013  
Special Needs Camp Counselor at Camp Kehilla Day Camp - Wheatley Heights, NY Summer 2009-2010

### **RESEARCH PROJECTS/PUBLICATIONS**

Siena Twitter Information Retrieval System: May 2011 – Spring 2013 (STIRS)  
Developed Information Retrieval System for Twitter Tweets for NIST Microblog Track

*10 Weeks to TREC: STIRS, Siena's Twitter Informational Retrieval System.* The Twentieth Text Retrieval Conference Proceedings,(with D. Lim, S. Small, K. Appel, D. Kalic, M. Kemmer, D. Purcell, C.Tompkins, C. Tran). Gaithersburg, Maryland, November 15-18, 2011.

*Siena Twitter Information Retrieval System: The 2012 Micro-blog Track.* The Twenty-First Text Retrieval Conference Proceedings, (with D. Lim, S. Small, Karl Appel, Lauren Mathews). Gaithersburg, Maryland, November 6-9, 2012.

### **TECHNICAL SKILLS**

Proficient in: Java, Python, Oracle/SQL, Javascript, PHP  
Operating Systems: Windows/Linux

### **AWARDS**

Certificate of Achievement for Participation in Foundations Student Research Conference 2011  
4th in Qualifying ACM Programming Contest 2011 & 2012  
8th Regional ACM Programming Contest 2011

# Connor Blakely

4 Newell Road, Schenectady, NY, 12306  
(518) 813-5298 - [cj13blak@siena.edu](mailto:cj13blak@siena.edu)

## **EDUCATION:**

Siena College, Loudonville, NY  
Bachelors of Science, Computer Science, May 2014  
Cumulative GPA 3.0  
Glasgow University, Spring 2013

## **SKILLS:**

- Proficient in Java
- Some experience in SQL, Python, HTML
- Comfortable in Linux and Windows environments

## **EXPERIENCE:**

**Assistant Substitute - Capital Region BOCES** January 2012 – Present  
- Assist teacher, follow teacher's instructions, supervise child/children

**Carpentry and Maintenance - University at Albany** June 2011 – Present  
- Assisted on various projects, renovated dorm rooms

**Circulation Desk, Standish Library - Siena College** September 2010 – Present  
- Check books in and out for students and professors, shelve books, help find books, and answer questions

**Computer Science Tutor - Siena College** September 2012 – December 2012  
- Assist students with questions on homework and labs with languages such as Java and Alice

**Public Safety Assistant - Siena College** September 2012 – December 2012  
- Helped supervisors as needed, worked on projects such as Hot Work Permits and Floor Fire Escape Plans

## **RELATED COURSEWORK:**

-Intro to Programming	- Robotics
-Data Structures	- Database Management (Current)
-Assembly Lang. & Comp. Arch.	- Web Design (Current)
-Software Engineering (Current)	- Object Oriented Programming

## **HONORS/AWARDS:**

Leslie Mary Dorian Scholarship	2010 – Present
Public Safety Advisory Committee at Siena College	2011 – 2012



# Jacqueline Hausmann

1 Edison Ave  
Albany, NY, 12208

Email: [ja05haus@siena.edu](mailto:ja05haus@siena.edu)  
Phone: 518-231-3611

## Education

2010—Currently Pursuing      B.S. Computer Science/Creative Arts with Honors      Siena College  
Overall GPA: 3.70---- Computer Science GPA: 3.88

- Relevant computer science courses include Artificial Intelligence, Administrative Data Base Management, Computer Graphics
- Visual arts focused in Graphic Design and Digital photography with extensive experience in Adobe Creative Suites
- Currently writing my Honors Thesis, an analytical essay focusing of the effect of mixed media on the energy industry.

## Work History

September 2013 – Present      Computer Science Department      Siena College

- Academic Assistant- Once a week I collect various tasks from the Computer Science department including photocopying, cleaning, creating documents, and publishing a department newsletter.

December 2012–Present      Justin's Lounge and Bar      Albany, Ny

- Serving Manager-I manage the entire floor schedule for each week as well as help my general manager with ordering supplies and making decisions. I also handle any incidents within the floor staff while still working my own shifts.

March 2011–December 2012      Villa Valenti Pub      Troy, Ny

- Server- I worked on the floor and as a bartender.

## Collegiate Clubs

September 2012—Present      AMCW-Woman in Computing

- As youth coordinator I oversaw activities to introduce Computer Science to middle school and high school youth, including a robotics day at a local high school.

September 2011—Present      Siena College-North Albany Girl Scouts

- I planned and met with a troop of 8 high school freshman once a week. Through fun activities I encouraged a strong work ethic and leadership skills in my girls.

## Awards

Deans List	Fall 2010, Spring 2011, Fall 2011, Spring 2012, Fall 2012, Spring 2013
Presidential Scholarship	Fall 2010, Spring 2011, Fall 2011, Spring 2012, Fall 2012, Spring 2013
Honors Scholar	Fall 2010, Spring 2011, Fall 2011, Spring 2012, Fall 2012, Spring 2013

## Community Service

June 2010, 2011      Mission Trip, McAlpine Jamaica

July 2009, 2010, 2011, 2012      Fowler Day Camp-Head Counselor, Arts and Crafts Manager

# Bryan M. Leicht

1 Bellflower Road, Malta, NY 12020  
(518) 488-9161 [bm28leic@siena.edu](mailto:bm28leic@siena.edu)

## Objective:

To acquire a position in the field of Computer Science that will allow me further my current knowledge in the field.

## Education:

Siena College, Loudonville, NY

Bachelor of Science, Double Major in Computer Science and Mathematics, May 2014

- 3.50 Cumulative GPA
- 3.78 GPA in Computer Science
- 3.23 GPA in Mathematics

## Relevant Coursework:

Intro to Programming, Data Structures, Assembly Language and Computer Architecture, Object-Oriented Design and Programming, Analysis of Algorithms, Database Management, Communication and Networks, Discrete Structures I, Discrete Structures II, Software Engineering (Current)

## Computer Skills:

- Very experienced in Java programming, some experience in Machine Code and C++
- Experienced in the use of BlueJ, Python, and Excel
- Comfortable with Windows hardware, some experience with Macintosh
- Worked on a team project to program Ticket to Ride Board Game

## Professional Experience/Employment:

Information Specialist, Software Engineering Team Siena College (September 2013-Present)

- Have to keep track of all team documents and make them readily available for team use
- Helps with productivity of the client and team meetings

Customer Service Teammate, Malta Price Chopper (2007-Present)

- Worked in the Front End Department as a cashier, bagger and maintenance teammate
- Worked with several other departments when needed for several years
- Worked flexible hours and helped other teammates with the maintenance of the store and to solve any customer problems

Line Judge/Score Keeper, Siena Women's Volleyball (2012-Present)

- Had to maintain constant attention to the rules and details of the game in order to make proper rulings for the matches
- Kept track of fast paced scoring and substitutions for a smooth flowing match

## Awards:

- Member of Upsilon Pi Epsilon Computer Science Honor Society Inducted 2013
- Recipient of Presidential Scholarship Received 2010-2013
- President's List Spring 2013
- Dean's List Fall 2011, Spring 2012, Fall 2012

**Katherine Sitaro**  
113 Straddle Hill  
Wethersfield, CT 06109  
katherine.sitaro@gmail.com  
(860) 462-1852

## **EDUCATION**

**Siena College**, Loudonville, NY  
B.S. Computer Science, Business Minor May 2014  
GPA 3.2; **Computer Science GPA 3.1**; Presidential Scholar 2010 - present

## **RELEVANT EXPERIENCE**

***Application Quality Assurance Intern, Treo Solutions***, Troy, NY June 2012 – present

- Test online applications to deliver data to multiple clients
- Program automation software to test the online application
- Write test cases for online applications to test functionality

***Software Engineering, Siena College Computer Science***, Loudonville, NY September 2013 – present

- Team Web Designer - responsible for creating and updating team website
- Collaborated with a team of four other students to solve a client's technical problem

***ITS School of Science Helpdesk Student Manager, Siena College***, NY August 2012 – December 2012

- Previous Role: ITS School of Science Consultant – Tier II June 2011 – August 2012
- Managed a team of seven other students
- Find solutions as an individual and as a team to resolve all issues within the School of Science
- Managerial Duties include: holding team meetings, training consultants, updating team wiki, and maintaining a constant and supportive presence at the helpdesk and SoS as a whole

***Computer Science Tutor, Siena College***, Loudonville, NY March 2011 – May 2012

- Group and individual tutoring for computer science courses
- Python and Java programming languages

***Developing Virtual Learning Environments, Siena College***, Loudonville, NY January 2011 – May 2011

- Course focused on creating an innovative virtual environment
- Built classroom-based projects and learning modules for a variety of educational settings
- Navigated virtual environments and developed new ways of using computer-mediated technology

## **PROGRAMMING LANGUAGES/SOFTWARE**

- Java, SQL, HTML, CSS, Python
- Microsoft Excel, Microsoft Powerpoint, Microsoft Project, Microsoft Word, TestComplete

## **LEADERSHIP/CONFERENCE EXPERIENCE**

- 7th Annual Siena Leadership Institute - Student Leadership Conference Nominee: Fall 2012
- "Fill Her Shoes" Women's Leadership Conference, Siena College Nominee: Fall 2012
- Grace Hopper Conference, Baltimore, MD - Facebook Scholarship Recipient: Fall 2012

## **ADDITIONAL EXPERIENCE**

***Materials Management Intern, State of CT Judicial Branch***, Hartford, CT January 2012

- Completed inventory reports for multiple locations throughout the state
- Ran queries on databases to compile inventory listings for each office building
- Filled supply orders for government offices

## **OTHER ACTIVITIES**

***Ambassador's Club, Siena College Admissions***, Loudonville, NY January 2011 – December 2011

***Pathfinders Club, Siena College Admissions***, Loudonville, NY September 2010 – May 2011

# Glossary

**Chrome:** A web browser created by Google Inc.

**Firefox:** A web browser created by Mozilla Foundation

**Hobb-IT:** The name of the project called Hobby Information Tracker

**HTML:** HyterText Markup Language, a language used to make web pages

**Internet Explorer:** A web browser created by Microsoft Inc.

**Java:** An object oriented programming language owned and developed by Oracle Corporation

**Magic:** Magic: The Gathering

**Magic Card:** A paper card from the game Magic: The Gathering

**Magic the Gathering:** a card game created by Richard Garfield published by Wizards of the Coast

**MySQL:** An open source object relational model database management system currently owned by Oracle Corporation. This is not to be confused with Oracle.

**Oracle:** An object relational model database management system produced by Oracle Corporation. This is not to be confused with MySQL.

**PHP:** Stands for PHP Hypertext Preprocessor, a recursive acronym, it is a server side language generally used to generate HTML and CSS code.

**Safari:** A web browser created by Apple Inc.

**Web Parsing:** The process of breaking the information on a website page into a more usable format