

# SCAR

## Siena College Accurate Registration Software Requirements Specification

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# **Chapter 1**

# Requirements Specification

## 1.1 Product Overview and Summary

Siena College Accurate Registration (SCAR) will be a comprehensive reconstruction of Siena College's current guest registration system. Through a web based program current Siena students will be able to register guests, access a database of previously registered guests, and receive confirmation of registration in an efficient and timely manner. Guests will receive a unique Guest Registration Identification (GRID) number, and will be able to use a driver's license to populate the online guest registration form, and will receive confirmation quickly and efficiently. Overnight Hosts will receive an email saying that the overnight host has been requested to host a guest and will have the ability to either deny or accept the request to be an overnight host. Public Safety will be able to search a database (in multiple different ways) to access current guest information in an efficient and aesthetically pleasing manner. The system administrator will have complete control over Siena College guest registration and in doing so will be able to shut down registration at any time, lower the number of guests able to be registered, and the system administrator will also have all of the abilities that public safety has.

## 1.2 Development and Production Environments

### **Software Engineering Lab's Windows Computer**

Model: Dell OptiPlex 760

Operating System: Windows Vista Enterprise

Processor: Intel Core 2 Duo 2.93 GHz

RAM: 4GB

HDD: 300GB

### **Software Engineering Lab's Macintosh Computer**

Model: iMac 5.1

Operating System: Mac OS X

Processor: Intel Core i5 2.5 GHz

RAM: 4GB (1333 MHz DDR3)

Graphics: AMD Radeon HD 6750M 512MB

HDD: 500GB

### **Server**

Server Name: oraserv.cs.siena.edu

Operating System: CentOS 5.2, Kernel 2.6.18-92e15

CPU Type: Intel Xeon 2.66 GHz

Memory: 8GB Memory

### **Software**

Adobe Dreamweaver, Adobe Fireworks, Apache HTTP server, BlueJ, Eclipse, Google Chrome, Internet Explorer, Microsoft Office 2007-2010, Mozilla Firefox, MySQL, Notepad++, Oracle and Safari

## 1.3 User Case Narratives

### Administrator User Case Narrative

The administrator for SCAR will be the Director of Public Safety, and anyone else the Director of Public Safety is willing to share the account with. The administrator will have the capability to enter into SCAR with a specific administrator account. Once logged in, the administrator will have several options. The administrator will be able to do quick searches through the database for any students or guests currently in the database. The administrator will be able to access all personal information on any particular student or guest. The administrator may alter or update any information on any particular student or guest. The administrator will also have the capability to add or remove any students or guests currently in the system database. If the administrator removes a student from the database all information regarding that student will be removed from the database. The administrator will also be able to place or remove bans on the students prohibited to register guests. The administrator will have the capability to shut Guest Registration down. The administrator may also ban guests, preventing a guest from being registered by any student. The administrator will also have the capability to create Public Safety accounts for the system. The administrator may log out at any time.

## **Public Safety User Case Narrative**

The term Public Safety includes the Public Safety Officers, the secretaries, and any other staff member who works for the Public Safety Department. Public Safety will be able to swipe incoming guest's driver's license at the designated Registration Station, which is currently Kiernan Hall, to fill out the Guest information fields of the Registration form. Public Safety will receive notifications if the guest has been banned from campus or restricted access. If there are no prior offenses, then the guest's information will be saved in a database. After a successful registration, Public Safety will receive a confirmation message with a verification number for the Guest Registration case. With the verification number, Public Safety will be able to pull up a guest's information at any time from the database. If the guest returns to stay at Siena at a different time period, Public safety will be able to pull up the information on the guest, and a second registration will not be necessary. Public Safety officers will be provided with a login name and password to access the database system. Using a Public Safety account, Public Safety officers will be capable of searching the SCAR database for students or guests. Public Safety officers will be able to access all of the personal information of all students and guests in the database for the purpose of verifying the identity of any given student or guest.

## **Student**

Students will be responsible for registering guests using SCAR. Students will register guests either online via the SCAR web form or in person with a Public Safety officer in Kiernan Hall.

If working online, a student will sign into the SCAR system using a username and password provided by Siena College. The student's information will be filled out automatically based on the username the student provides. If the student's guest is a first time guest, the student will have to complete all fields on the SCAR web form regarding the guest's personal and emergency contact information. If the student's guest is a returning guest, the student will be able to select the guest's name from a drop-down menu and the SCAR web form will automatically be populated with the guest's information. The student will then print the confirmation form generated by the SCAR web form and instruct the guest to carry that form at all times while on the Siena College campus.

If a student registers a guest with a Public Safety officer in Kiernan Hall, the registration process is different. The student will accompany the guest to Kiernan Hall. The Public Safety officer will scan the student's Siena Identification Card. The Public Safety officer will then scan the guest's government identification card. The guest will then be required to fill out an emergency contact form. The guest will then be provided with a confirmation form to carry while on the Siena College Campus. If a student attempts to register a guest banned by an administrator, the SCAR system will automatically reject the student's attempt.



## **Guest**

Guests can be registered in one of two ways. Guests may be registered online by a student sponsor using SCAR's web form or by accompanying a student sponsor to Kiernan Hall and registering in person with a Public Safety officer. If a guest is registered online, a student sponsor must manually enter all of the guest's information into SCAR's web form. If a guest is registered by a Public Safety officer, the guest's information is gathered by scanning the guest's government identification (driver's license). The guest will then fill out only an emergency contact form. Once a guest is registered, the guest's information is stored in a database. If a guest has been previously registered by a student, a student can simply select the guest's name on the SCAR web form and the guest's personal information will automatically populate the required fields. Once a guest is registered, the guest will be given a confirmation form which the guest will carry in order to verify the guest's identity. If a guest is registered online, a confirmation form will be delivered to the guest via email. If a guest has a vehicle on campus, a portion of the confirmation form will be detached and left on the dashboard of the guest's vehicle to use as a temporary parking pass.

## **Overnight Host**

The term Overnight Host includes any student who will be hosting a guest that has been granted permission to stay on Siena campus overnight. Siena Life Policy (pg 55 of the 2012-2013 issue) does not allow a student to register quest of a different gender overnight unless the guest has an overnight host of the same gender. An overnight host will be selected by the student and identified during the registration process. The overnight host will receive a confirmation email immediately following the registration of the guest being hosted.

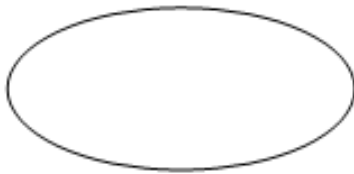
## 1.4 UML Use Case Diagram

### Use Case Diagram Legend

Use Case diagrams use symbols as a means to represent how different users interact with a system. The symbols included in D&C Solutions' Use Case diagram are Actors, Processes, Interactions, and the System Boundary. This legend will explain the significance of each symbol.



**Actor-** Represents the human and non-human entities that interact with the system. Human actors are displayed on the left side of the diagram while Non-Human actors are displayed on the right side of the diagram. The names of the actors are written below the symbol.



**Process-** Represents an action performed by the system. Processes are labeled within the symbol.

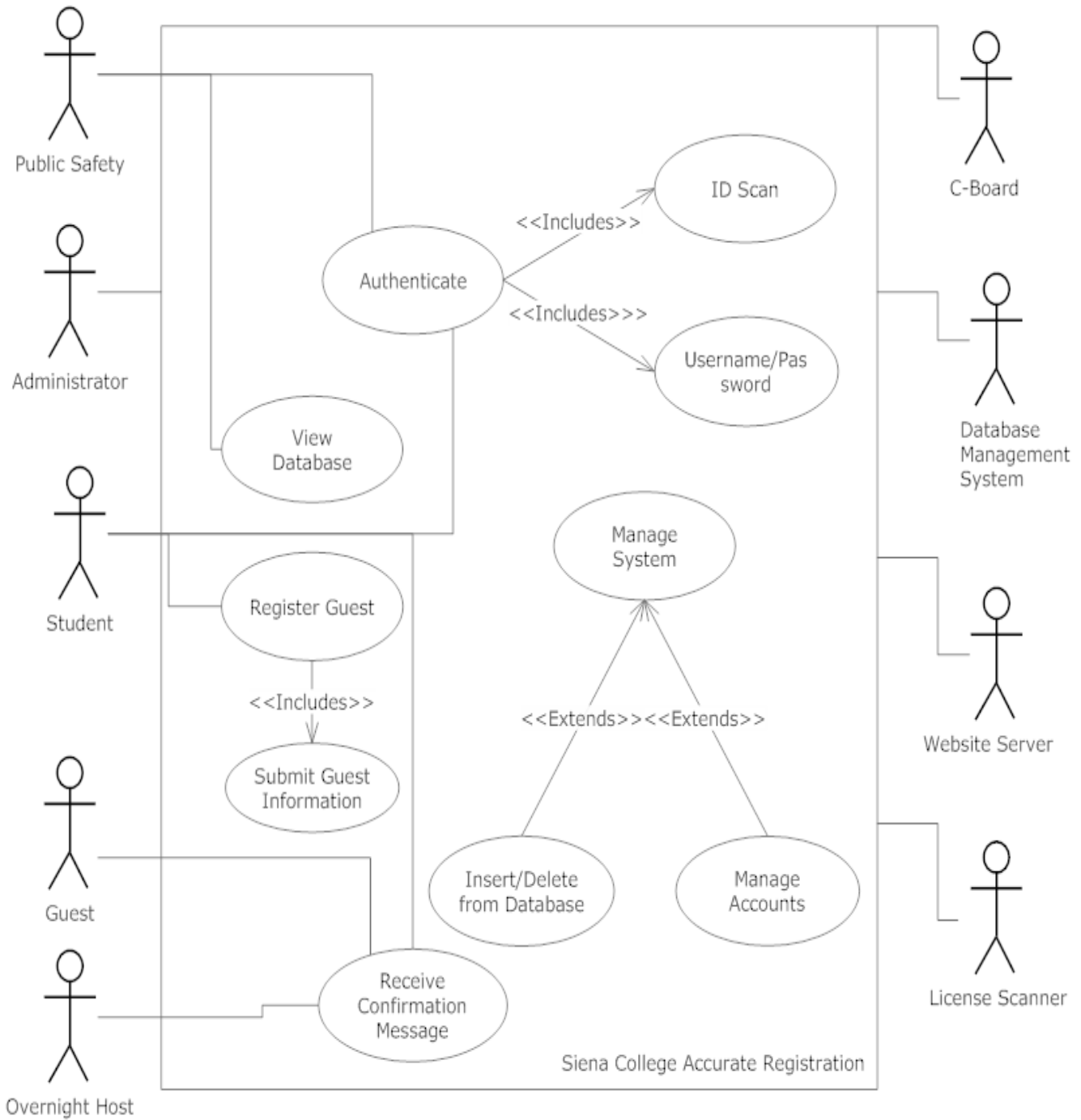


**Interaction-** Represents the ability of an actor to perform a process within the system. An actor has access to a process if there is an interaction directly linking the process and the actor symbols. If an interaction is drawn between an actor and the system boundary, it represents an interaction between that actor and all of the processes within the system.



**System Boundary-** Represents the limitations of the system. All processes of the system are contained within the system boundary. All outside entities are represented outside the system boundary.

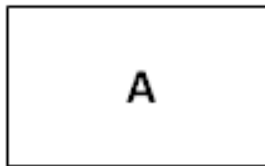
# SCAR UML Use Case Diagram



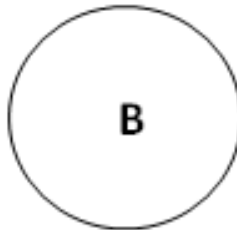
# 1.5 Data Flow Diagrams

## Data Flow Diagram Legend

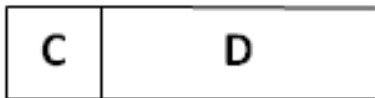
Data Flow diagrams use symbols as a means to represent the different network levels of a system graphically. The symbols included in D&C Solution’s Data Flow diagrams are Entities, Processes, Datastores, and Data Flows. The legend will explain the significance of each symbol.



Entity-Represents the human and non-human actors that interact with the system. A marks where the name of the actor is written.



Process-Represents the action performed by the system to manipulate the data. B Marks where the process is written, and is always in the form of a verb.



Datastores-Represents where data is stored in the system. C marks where The Datastore’s type is written. D marks where the name of the Datastore is written.

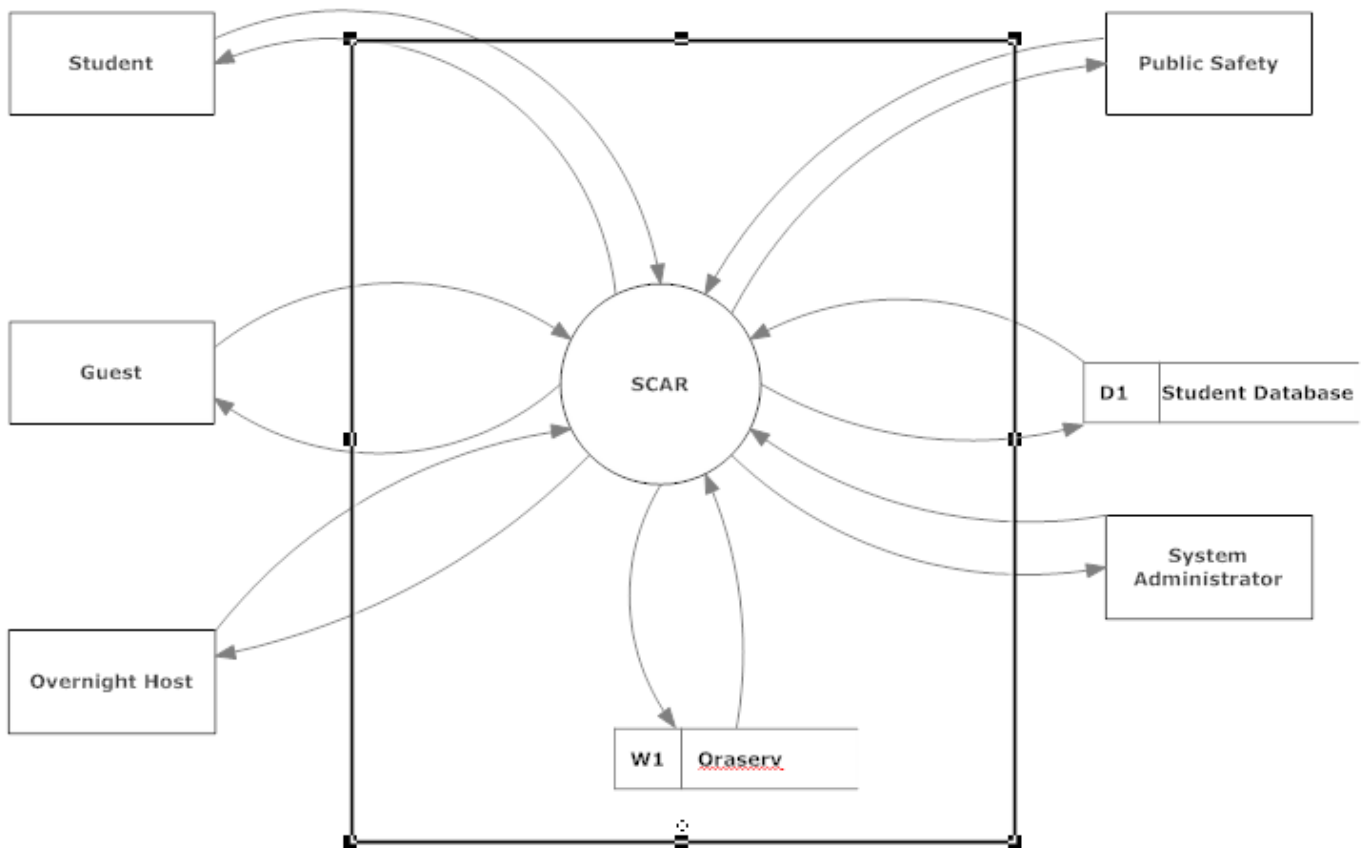


Data Flow-Represents how data flows from one entity to the next. E marks where the description of the data is written on the Data Flow symbol.

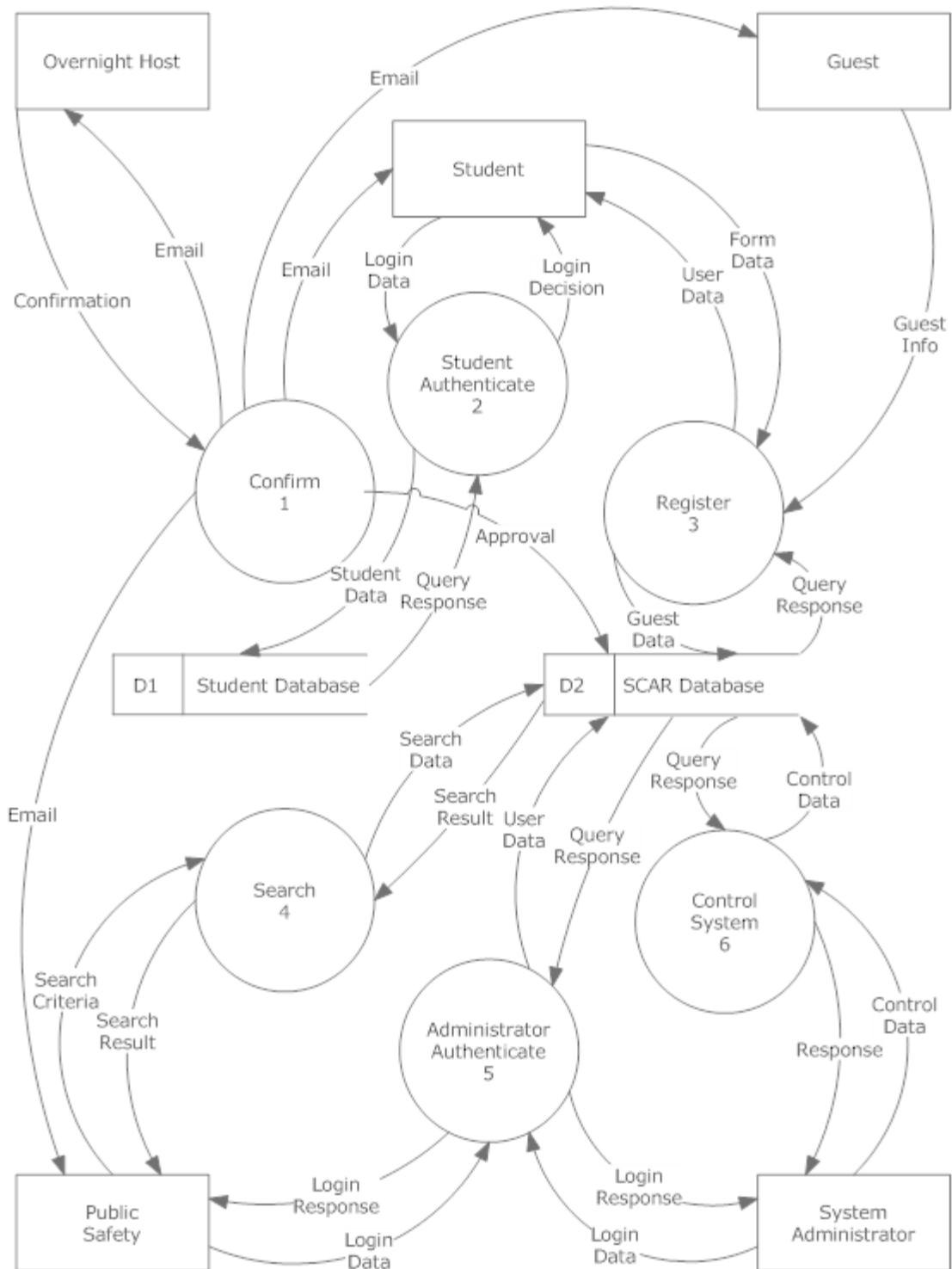


Boundary Line- All aspects controllable by D&C Solutions.

## SCAR's Context Diagram

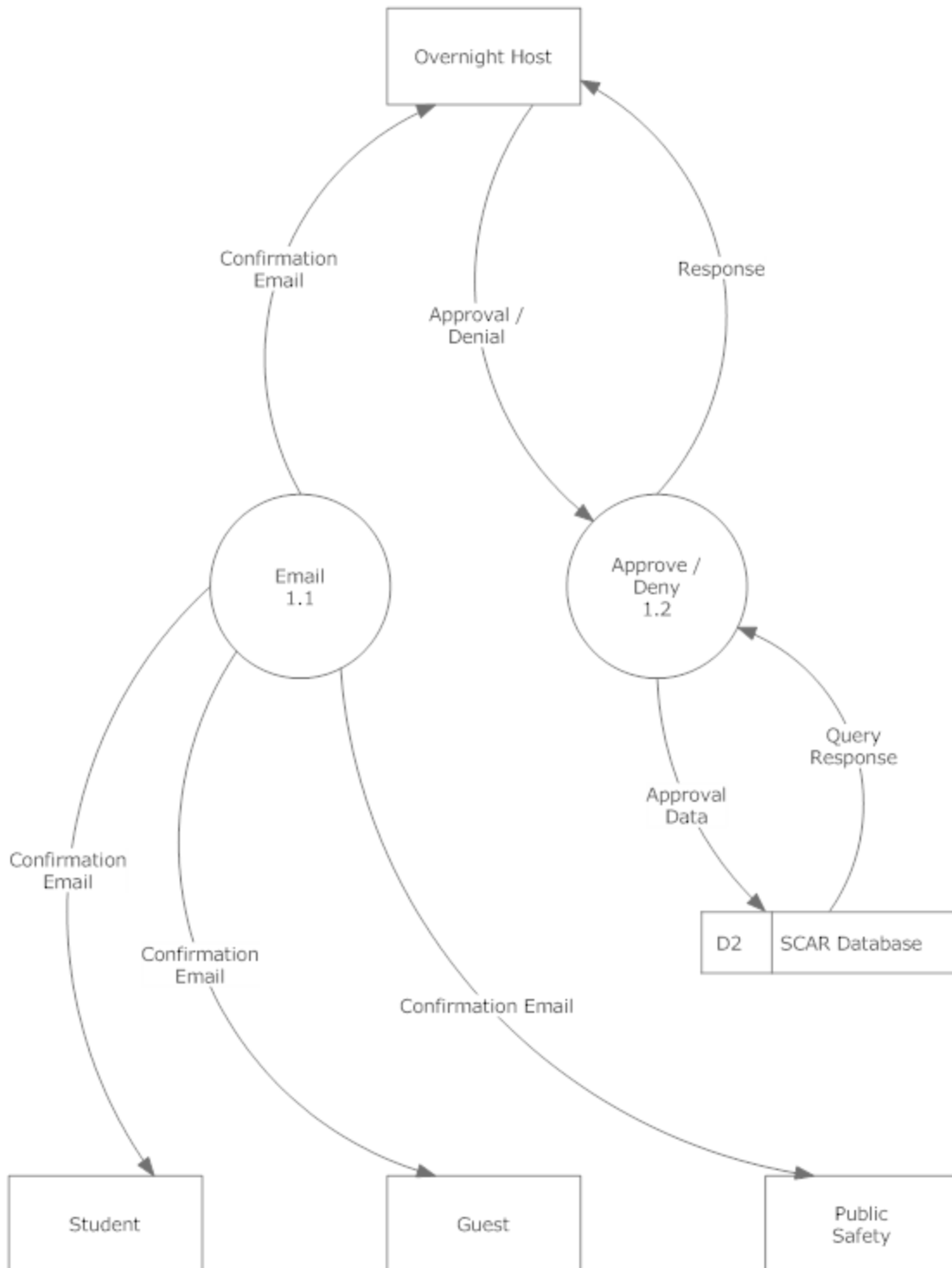


# Level 0 Diagram

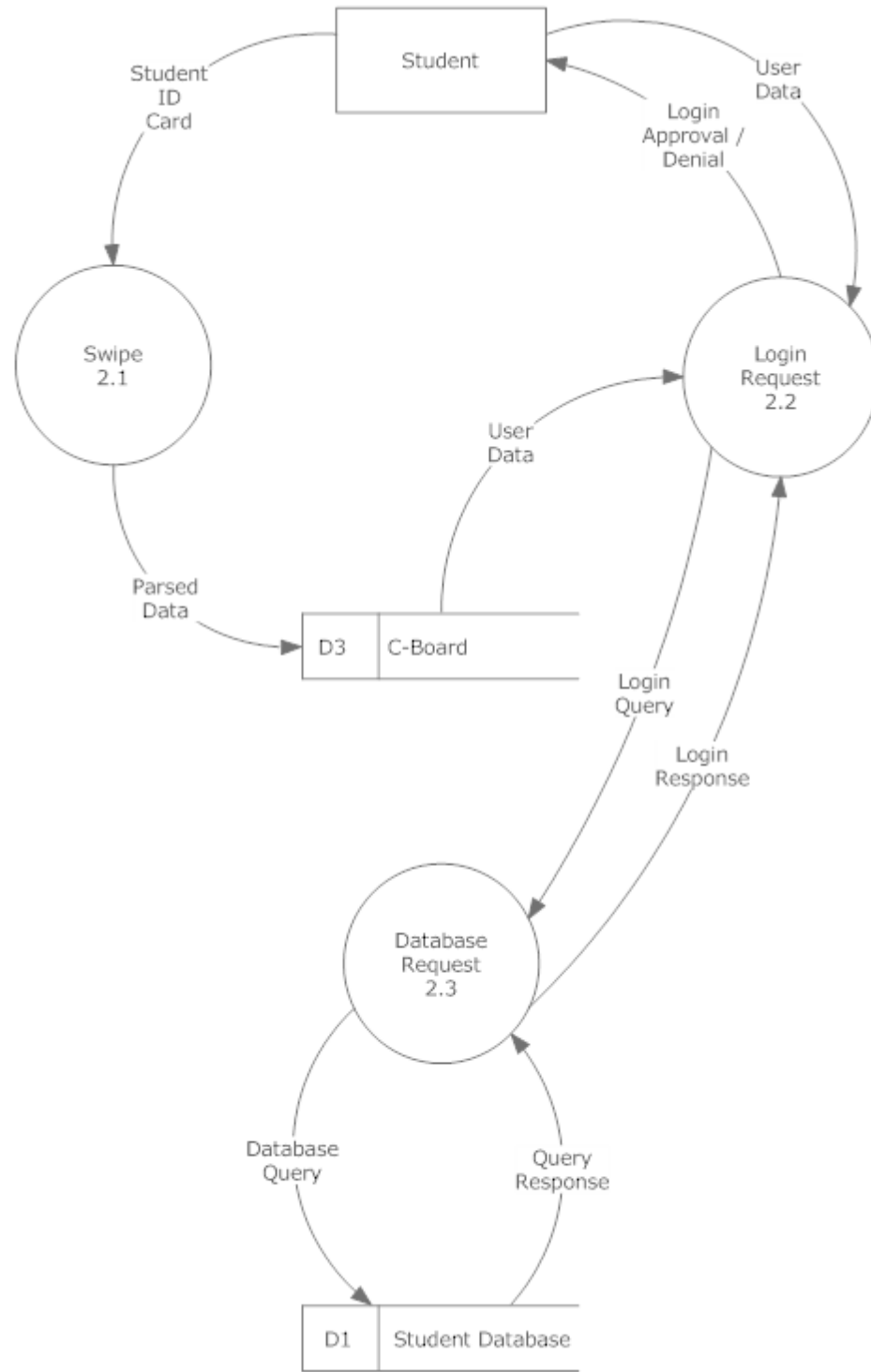


# Level 1 Diagrams

## Process 1: Confirm

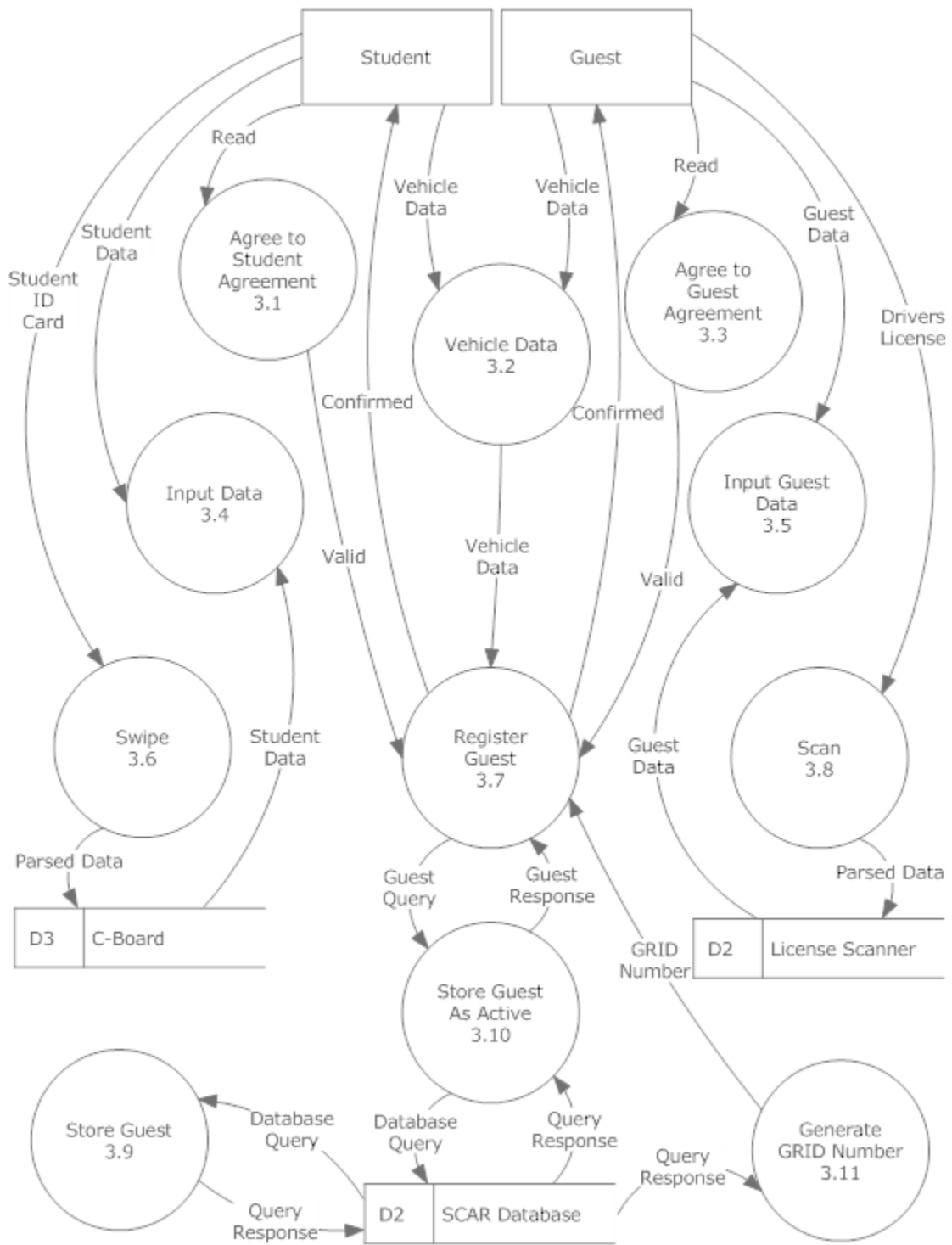


## Process 2: Authenticate

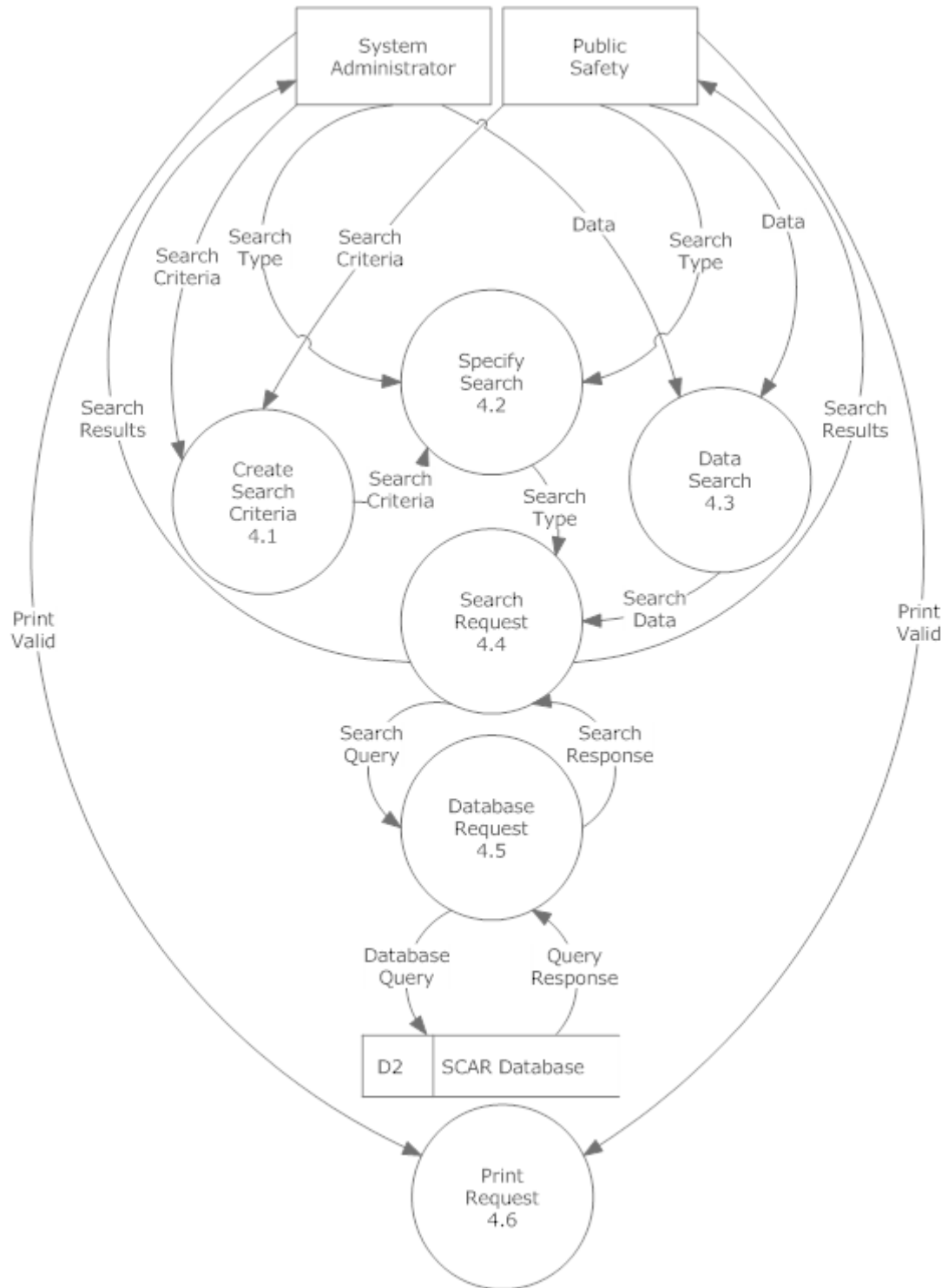




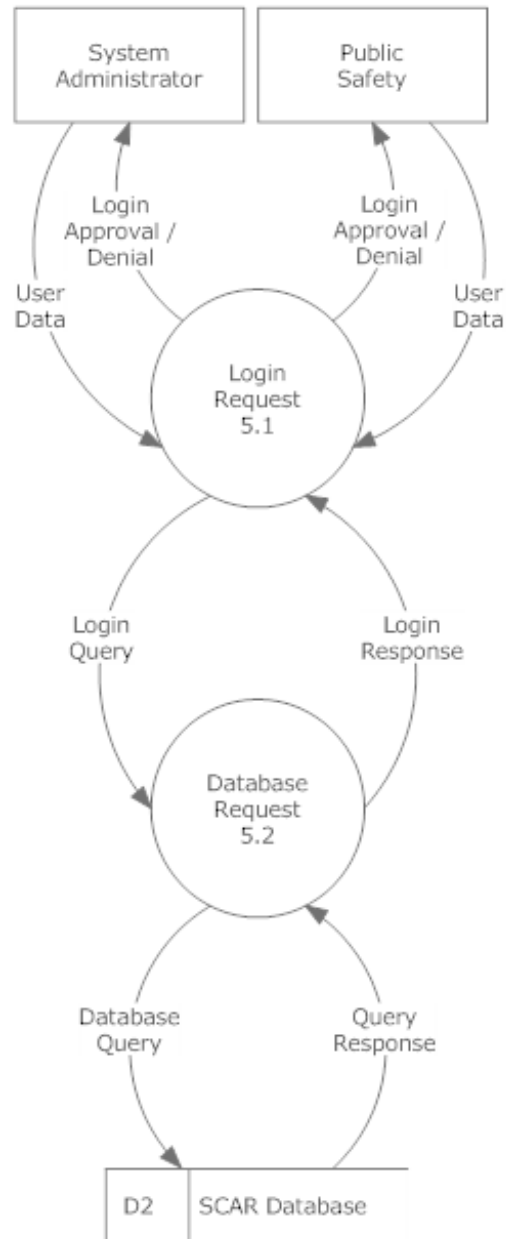
# Process 3: Register



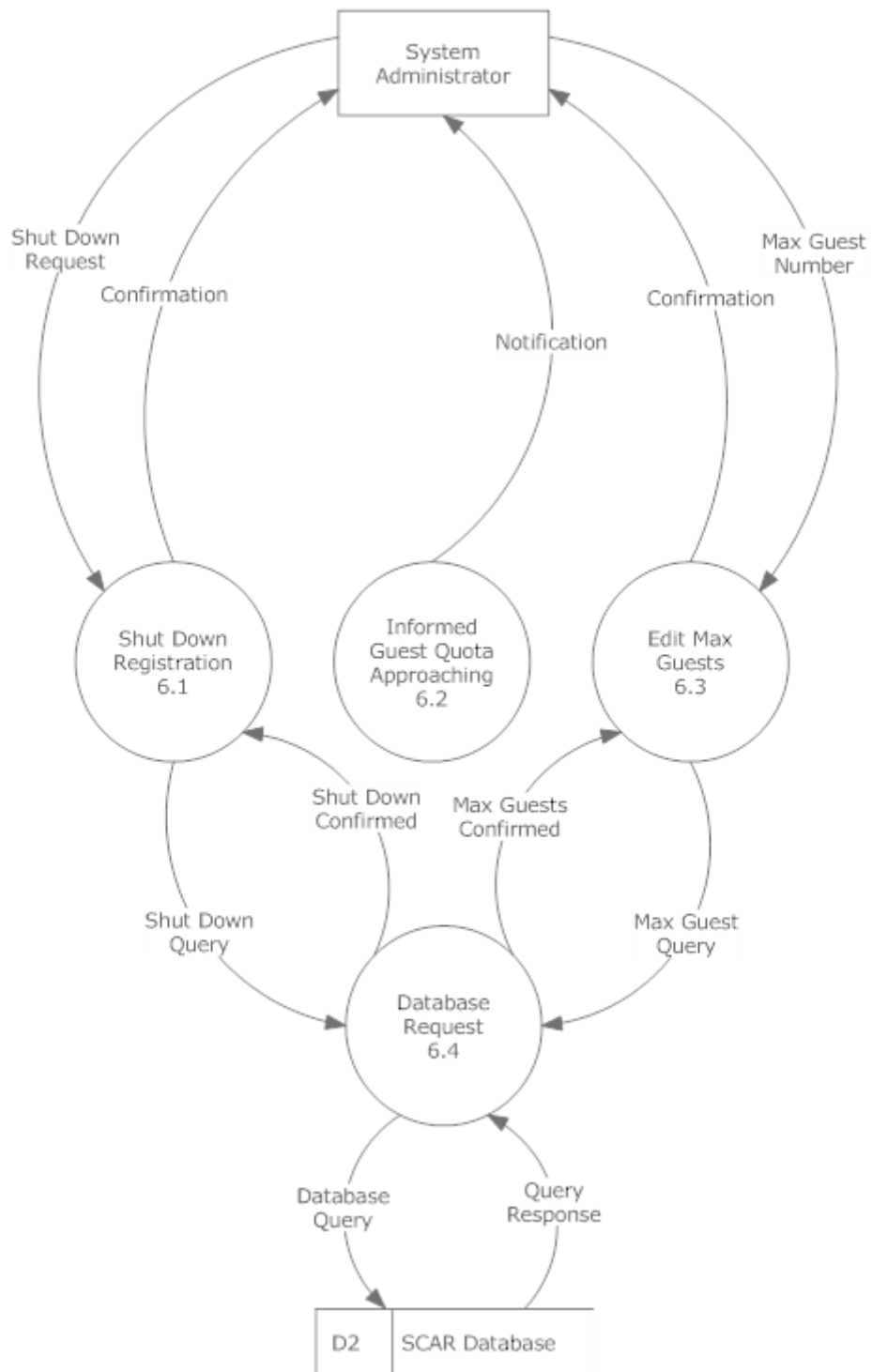
## Process 4: Search



## Process 5: Administrator Authenticate

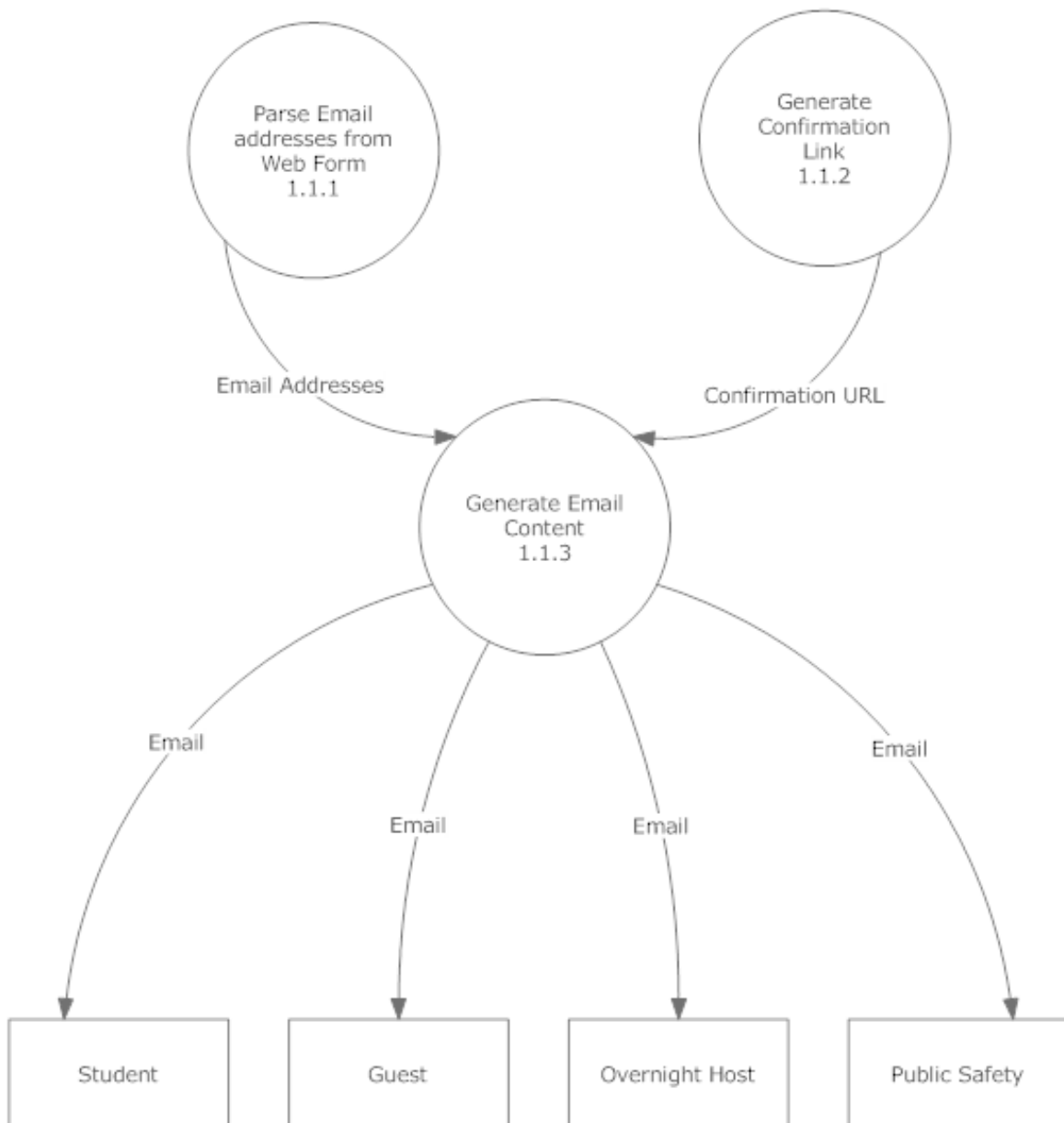


## Process 6: Control System

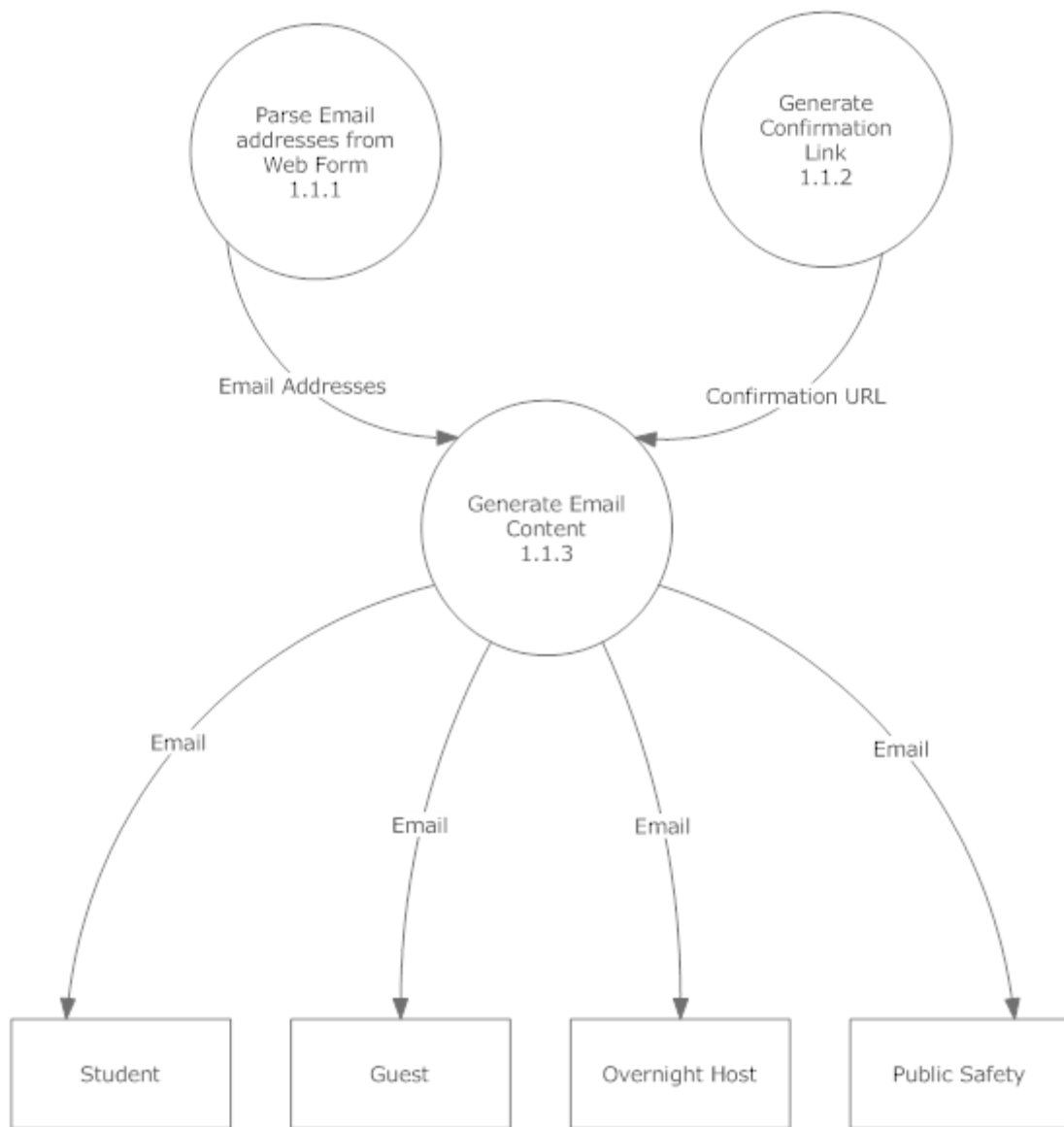


## Level 2 Diagrams

### Process 1.1: Email



## Process 6.2: Inform Guest Quota Approaching



## 1.6 Functional Requirements Inventory

- General
  - Useable on all browsers
  - Secure
  - Data must be archived upon end of each year
  - Online form has requirements so that it must be completed
  - System has a maximum registration number
  - Abides by Siena Life (Page 55 of the 2012-2013 issue)
- Student
  - Ability to register a guest
  - Login required
  - 901 and/or username and password can populate the online form
  - Swipe of Student ID card on C-Board will populate online form
  - First time registered guests are added to the SCAR database, unique for every student
  - Ability to access previously registered guests to populate online form
  - Receives a registration confirmation email
- Guest
  - Guest Form Printout must look the same when printed from all computers
  - Swipe of Driver's License (on License Scanner) will populate online form, and be stored in the SCAR database
  - Receives a registration confirmation email
  - Will receive a unique GRID number
  - Vehicle registration
    - Information will be stored in the SCAR database
- Overnight Host
  - Receives a registration confirmation email
    - Confirmation email includes a link which upon being clicked will confirm the overnight hosts position as overnight host

- Public Safety
  - Login required
  - Has the ability to search:
    - 901s
    - GRID Numbers
    - Student Name
    - Guest Name
    - Date
    - Other, more advanced, Boolean searches
  - Receives a registration confirmation email
- System Administrator
  - Login required
  - Has the ability to search:
    - 901s
    - GRID Numbers
    - Student Name
    - Guest Name
    - Date
    - Other, more advanced, Boolean searches
  - Receives a registration confirmation email
  - Notification that registered student number is reaching its quota
  - Ability to shut registration down at any point
  - Ability to lower maximum registered guests number

## 1.7 Non-functional Requirements Inventory

- Efficient
- Student-Friendly
- Intuitive to use for Public Safety
- Easily Maintained
- Aesthetically Pleasing



## **1.8 Exception Handling**

At the current stage of design the exception handling for SCAR is unknown. As D&C Solutions progresses with the preliminary and detailed design the necessary exception handling will become increasingly updated.

## **1.9 Early Subsets and implementation Priority**

D&C Solutions will be ensuring that all functional requirements of SCAR are met. D&C Solutions has identified the following as implementation priorities:

- The ability for all users to log into the SCAR application
- The ability to register guests using the SCAR web form
- The storage of guest information into the SCAR database
- The ability to send confirmation emails to the necessary users
- The ability of the administrator to alter the database
- The ability to query the database

## **1.10 Foreseeable Modifications and Enhancements**

In the future, SCAR may be updated to include the following:

- The ability to query the database by scanning a valid form of identification
- The ability to automate input of vehicle information
- The ability register guests at multiple locations

## **1.11 Testing Requirements**

The SCAR Web Interface will be tested on all four major web browsers (Internet Explorer, Firefox, Chrome, and Safari). SCAR must meet all standards outlined by Mr. Papadopoulos in order to be considered complete. In order to ensure all standards are met, D&C Solutions will be testing each of the functional requirements individually. Once all of the individual functional requirements are working properly, SCAR will be tested as a complete system. Details regarding the specifics of the testing process will be released in D&C Solutions' upcoming Preliminary Design and Detailed Design documents. The results of the testing process will be published in the Acceptance Test document.

## **1.12 Acceptance Criteria**

The acceptance criteria for SCAR will be defined by the functional and non-functional requirements list in sections 1.7 and 1.8 above. The functional requirements are the criteria that are testable and measurable. The non-functional requirements will be the qualities of the system. After SCAR is completed and tested, D&C Solutions along with Mr. Papadopoulos will determine which requirements were fulfilled.

## **1.13 Design Hints and Guidelines**

SCAR is currently in an early stage of development. Therefore, no hints and guidelines can be outlined at this current time. As D&C Solutions continues progress, the guidelines will be determined by both D&C Solutions' client, Mr. Papadopoulos and D&C Solutions.

## Appendix B- Glossary of Terms

- Adobe Dreamweaver: web design software
- Adobe Fireworks: graphics editor
- Apache HTTP Server: open source web server
- BlueJ: java integrated development environment
- C-Board: A proprietary software used to read SID cards.
- Eclipse: open source integrated development environment
- GB: Giga-Byte
- GHz: Giga-Hertz
- Google Chrome: web-browser developed by Google
- Guest (As Defined in Siena Life-Student Handbook): any person who is visiting a Siena residence living facility and is not affiliated with the college as a current student, employee or faculty member
- GRID: Guest Registration Identification
- HDD: Hard Disk Drive
- Internet Explorer: web-browser developed by Microsoft
- MHz: Mega-Hertz
- Microsoft Office 2007-2010: word processing package developed by Microsoft
- Mozilla Firefox: web-browser developed by Mozilla Corporation
- MySQL: open source relational database management system used in many web applications
- Notepad++: free source code editor
- Operating System: collection of software that is used to manage computer software

- OS: Operating System
- RAM: Random-Access Memory
- Safari: web-browser developed by Apple
- SCAR: Siena College Accurate Registration
- SID: Student IDentification
- Siena Life – Student Handbook: a resource and reference guide provided to Siena College students with information regarding; operations, policies, guidelines, terms, conditions, and regulations at Siena College
- SQL: Structured Language Query
- Vista: Microsoft Windows operating system

# Appendix B- Timeline (Gantt Chart)

