Operational Concept Description (OCD)

PROJECT TITLE
LEMA FAMILY ACCOUNTABILITY SYSTEM

TEAM NO
#04

TEAM MEMBERS & ROLES

NAME	ROLES
Teawon Han	Project Manager
Zhen Huang	Feasibility Analyst
Ziming Wei	Operational Concept Engineer
Xiali Ma	Life Cycle Planner
Ying Yang	Life Cycle Planner
Ian Williams	Requirements Engineer
Kimberly Krause	IIV&V / System Requirements Engineer

<12/05/2011>

Version History

Date	Author	Version	Changes made	Rationale
09/28/11	Ziming Wei	1.1	• Build initial version of OCD for LEMA project	• Initial version of OCD
09/30/11	Teawon Han	1.2	• Review format of document and update history section.	• Update report format by using consistence terms and expressions.
10/07/11	Ziming Wei	2.1	• Complete system transformation section.	• Build new operational concept for the system
10/13/11	Ziming Wei	2.2	• Updated the capability goals and fixed bugs. • Updated 2.4, 3.3.	• Fixed bugs and updated diagrams.
10/24/11	Ziming Wei	2.3	• Updated 2.3, 2.4, 2.5, 3.2, 3.3, 3.4	• Updated the document and fixed bugs
11/21/11	Ziming Wei	3.1	• Updated 2.5, 3.3, 3.4	• Updated new system workflow, modified other parts according to new requirements.
12/05/11	Ziming Wei	3.2	• Updated 2.3, 3.4.2	• Updated according to latest SSAD

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1. Introduction

1.1   Purpose of the OCD

This document provides, in detail, the shared visions and goals of the success-critical stakeholders of LEMA Pilot School Integrated Family Accountability System. The success-critical stakeholders of the project are Beth B. Kennedy and Scott Petri, as the client; the teachers, students, parents and other staff of LEMA Pilot School, as users; and team 4 in CSCI 577, as the developer team.

1.2   Status of the OCD

The status of the OCD is currently at the version number 3.2 in the foundation phase. The current system has been analyzed. We have established new operational concept for the proposed system.

2. Shared Vision

2.1   Success-Critical Stakeholders

Table 1: Success-Critical Stakeholders

Stakeholder	Authorized Representatives	Organization	Relation to Benefits Chain
Teachers	Beth B. Kennedy, Scott Petri	LEMA Pilot School	- Provide information and feedback to the development team. - Provide training to the future users. - Get better information about students' performance
Development team	N/A: students of team 4 in CSCI577	University of Southern California	- Develop the system - Provide training
Students	N/A: students of LEMA Pilot School	LEMA Pilot School	- Get more information about performance
Parents	N/A: students of LEMA Pilot School	LEMA Pilot School	- Get more interactions with teachers

2.2   System Capability Description

- The type of system to be built:

  - The new system will assemble information about students such as attendance, grades, etc. from teachers into a central database. It will reduce time and simplify the currently complex procedure for teachers collecting students' data.
  - The new system will provide students' performance reports in an understandable way for teachers, students and parents.
  - The new system will provide a function for teachers to notify parents via email and text.
  - The new system will provide user-friendly graphic interfaces for teachers, students and parents.
  - The new system will be able to track the resources (books, computers, etc.) students have borrowed from the school.
  - The new system will provide security mechanism to make sure that all data in the system is well protected.

- The target customers for the system:

  - The target customers will be the teachers, students, parents and other school staff of LEMA School.

- The need or opportunity that will be satisfied by the system:

  - Teachers' need to manage students' information online.
  - Students and parents' need to access students' performance online.
  - Easier way for teachers to notify parents.

- A compelling reason for the customer to use the system:

  - Currently, teachers cannot easily gather students' information, nor can they provide students' performance efficiently.
  - Current parent notification is a complex, time-consuming procedure.

2.3   Expected Benefits

- The teachers will spend less time gathering students' grades, attendance, notifying parents via email and text, thus, they will have more time to improve the courses.
- The parents will get timely information about their children's performance at school, so they will know their children's status better.
- The teachers, parents, and students will be able to know students' performance easily online, and in different kinds of reports which provide more useful information.
- The teachers and students will be able to track the resources that students have borrowed from the school.
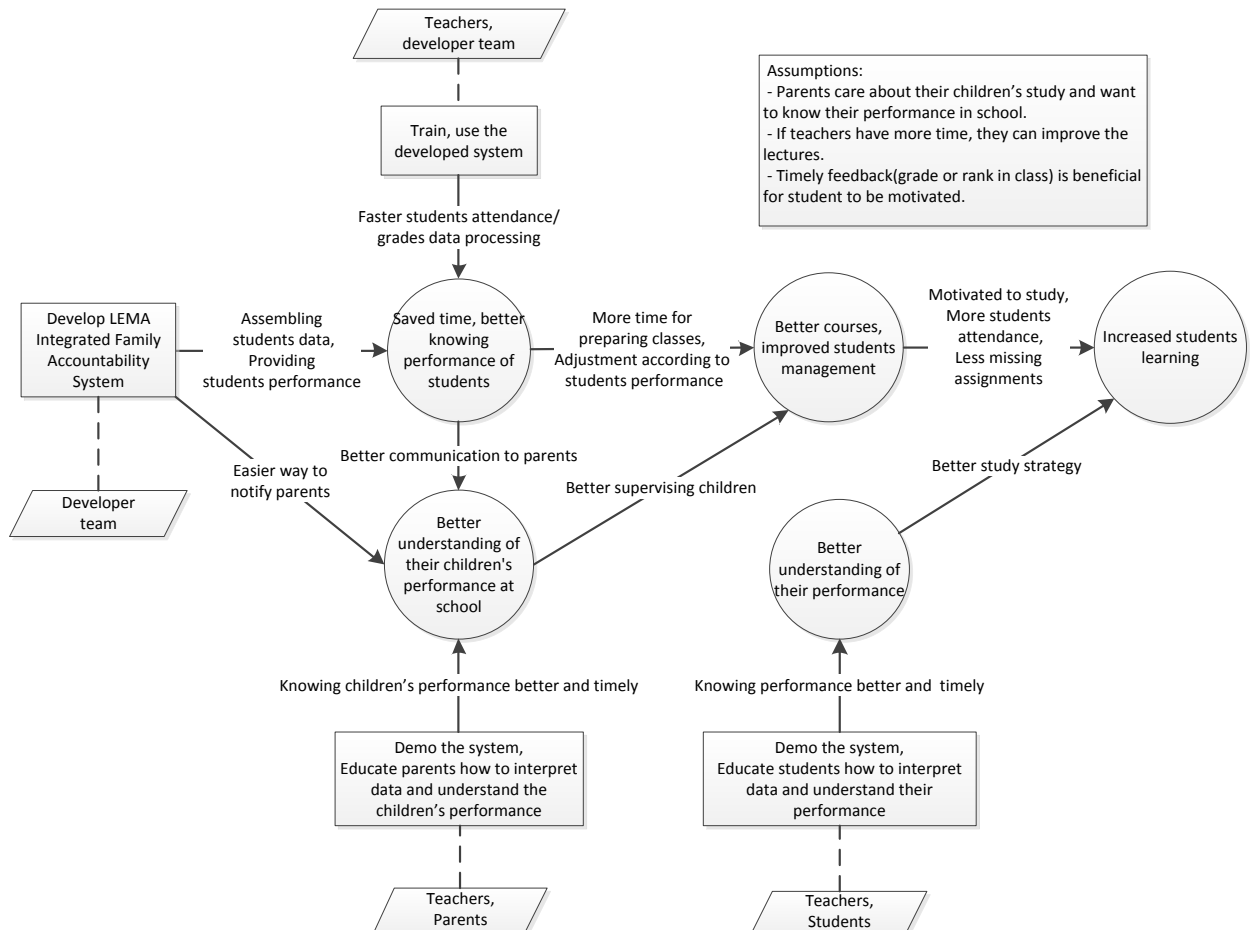
2.4   Benefits Chain

Teachers,
developer team

Train, use the
developed system

Faster students attendance/
grades data processing

Assumptions:
 - Parents care about their children's study and want to know their performance in school.
 - If teachers have more time, they can improve the lectures.
 - Timely feedback(grade or rank in class) is beneficial for student to be motivated.

Develop LEMA Integrated Family Accountability System

Assembling students data, Providing students performance

Saved time, better knowing performance of students

More time for preparing classes, Adjustment according to students performance

Better courses, improved students management

Motivated to study, More students attendance, Less missing assignments

Increased students learning

Developer team

Easier way to notify parents

Better communication to parents

Better understanding of their children's performance at school

Better supervising children

Better study strategy

Better understanding of their performance

Knowing children's performance better and timely

Knowing performance better and timely

Demo the system, Educate parents how to interpret data and understand the children's performance

Demo the system, Educate students how to interpret data and understand their performance

Teachers, Parents

Teachers, Students

Figure 1: Benefits Chain Diagram of LEMA Integrated Family Accountability System

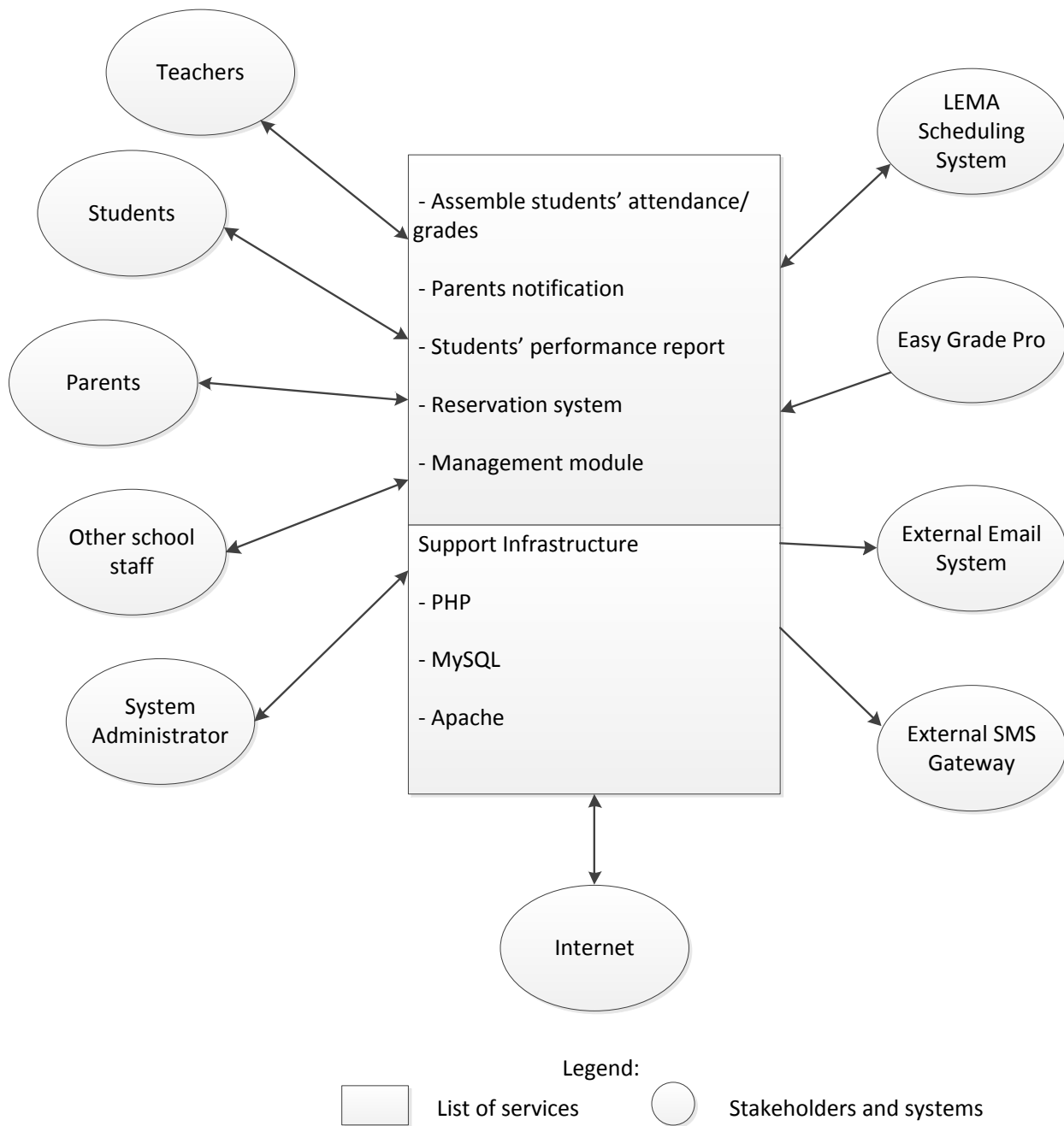# 2.5   System Boundary and Environment

Figure 2: System Boundary and Environment Diagram of LEMA Integrated Family Accountability System

3. System Transformation

3.1 Information on Current System

3.1.1 Infrastructure

Currently the school has two systems.
The first is SCHOOL MAX. This is the system provided by LAUSD and is the system that grades must be input into at the end of each marking period so that student reports are printed. The second system is Easy Grade Pro. This system was bought by LEMA because teachers did not feel SCHOOL MAX had the features they needed. EZ Grade Pro is much better for maintaining a daily account of students' attendance and grades and it provides many reports to display information. But the students' data are in the separated computers, so each teacher cannot see the attendance or grades of other teachers.

3.1.2 Artifacts

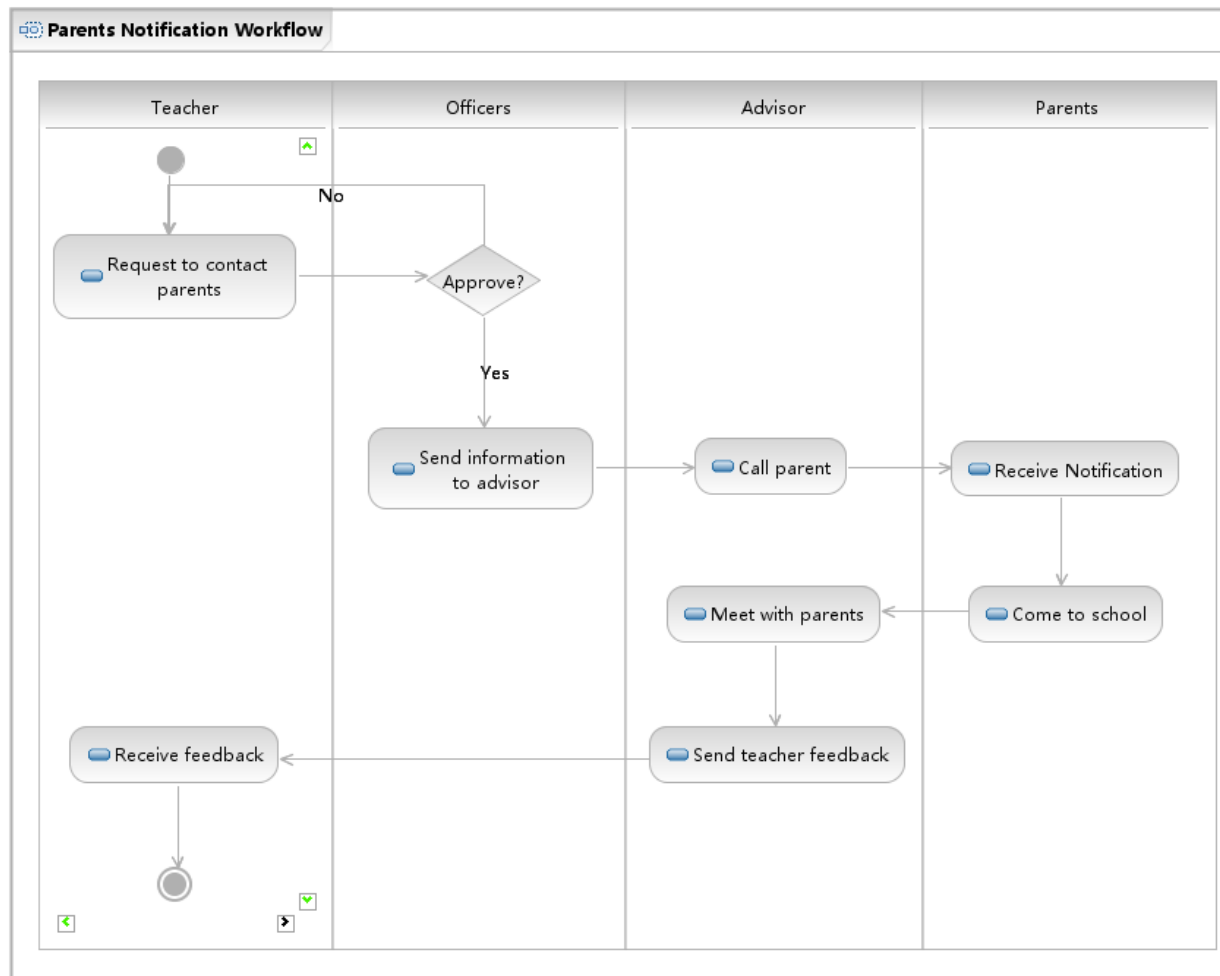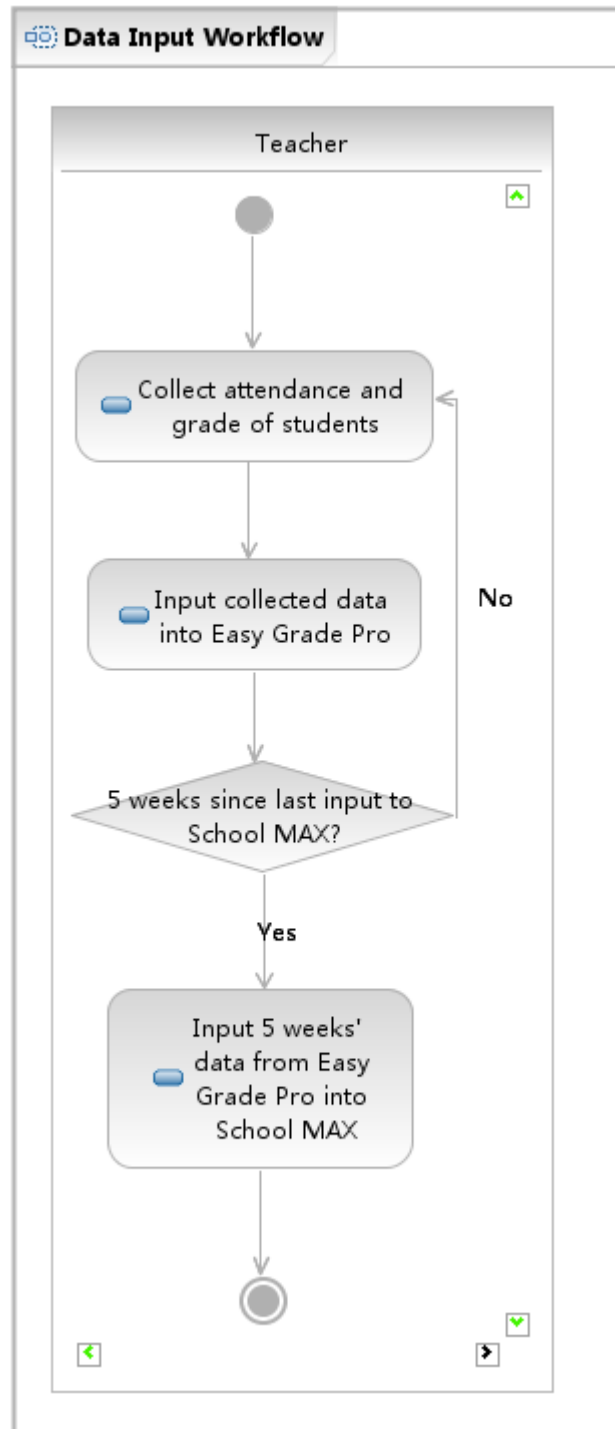| Artifact	Description	Requested/ Shown/ Receive	Planned Delivery Date
Reports generate by MyData.	Student information such as state test scores, student grades, attendance, A-G coursework, periodic assessments, English Language Learner data, and more. However, students are not familiar with the system. Therefore, students cannot be motivated to improve their performance and they cannot recognize what their statuses are. That is why our system is needed.	shown	9/20/2011
School Max	Provides basic information on students and parents (Student Profile; Contact information – phone and address; languages, but not email addresses; Schedule); List by Student Name (alphabetical for students in an individual teacher's classes); GRADES (Current Grades for specific semester, not cumulative or credits); REPORTS (Pre-defined reports of Attendance Detail, Class Lists; GRADES (for specific date parameters for students in a teacher's class). However, this system supports information in every 5 weeks. Therefore, teachers and parents cannot recognize what the students' status is timely.	shown	9/20/2011
Easy Grade Pro reports	Easy Grade Pro provides standardized reports on missing grades, individual student performance (not attendance) and assignment information. However, this program is installed in each teacher's personal computer. So, teachers cannot share the information concurrently.	shown	9/27/2011

3.1.3 Current Business Workflow

Figure 3: Parents Notification Workflow

Figure 4: Data Input Workflow

3.2 System Objectives, Constraints and Priorities

3.2.1 Capability Goals

OC-1 Multi-School Support: Use school code to support more than one LEMA School in the future.

OC-2 Scatterplot Reporting: The system must show scatterplots that show students where they stand for attendance and grades.

OC-3 Reservation System: The system is able to track books and other resources a student has from the school.

OC-4 Statistical Data: System must have aggregate student data calculations such as average and standard deviation for grades.

OC-5 Pie Chart for Grade Magnitude: System must have a chart that shows how much of a student's grade is made up of each category of work (projects, test, HW, etc.).

OC-6 Daily Reporting: System must have the ability to update student grade/attendance reports daily.

OC-7 Student Progress Over Time: System must show data for student GPA, number of credits completed, and attendance rate for the current term and for previous months.

OC-8 Data Format: Number of missing assignments, tardies, and absences must be a whole number, not a percentage.

OC-9 Level of Access: The system provides 5 levels of access: administrator, supervisor, teacher, student and parent.

OC-10 Import from Easy Grade Pro: The system is able to import text file of students' grade which is exported from Easy Grade Pro and store that information into database.

OC-11 Missing Assignments: The system must store missing assignments for each student separated by class.

3.2.2 Level of Service Goals

Table 2: Level of Service Goals

Level of Service Goals	Priority Level	Referred SSRD requirements
System response time(6 minutes for max time for generating reports, and 5-10 seconds for other page response)	Must have	LOS-1
Number of students: 300-1000	Must have	LOS-2

3.2.3 Organizational Goals

OG-1: Save time via more efficient data processing.

OG-2: Improve student management via more useful information and statistics.

OG-3: Better communication with parents via parents notification function.

OG-4: Improve students study by providing more useful data.

OG-5: Help teachers to manage school resources via resource reservation function.

3.2.4 Constraints

CO-1: Budget Constraints: $0 is preferable, $500 is fine, and $4000 is possible.

CO-2: UI Constraints: Interface for teacher should be like Easy Grade Pro, and interface for student and parent should have charts as well as numeric value.

CO-3: Multiple Browsers Support: The new system must support IE, Chrome, and Firefox browsers. (Safari is nice to have.)

3.2.5 Relation to Current System

Table 3: Relation to Current System

Capabilities	Current System	New System
Roles and Responsibilities	Teachers are responsible for data input. But teachers, students and parents cannot get useful information about students.	Teachers are responsible for data input. Students and parents can access to the new system to get performance report.
User Interactions	School Max is very slow. Easy Grade Pro lacks features that teachers want.	Quick response time. Better reports with more meaningful data.
Infrastructure	Easy Grade Pro is a single-machine Software. School Max is a web-based system.	Web-based system, built on PHP and MySQL
Stakeholder Essentials and Amenities	N/A	Simplified process for teachers to notify parents. Easier way for users to get more useful performance of students. Assure data security.
Future Capabilities	N/A	Upgrade input functions to show data while inputting for teachers' convenience

3.3   Proposed New Operational Concept

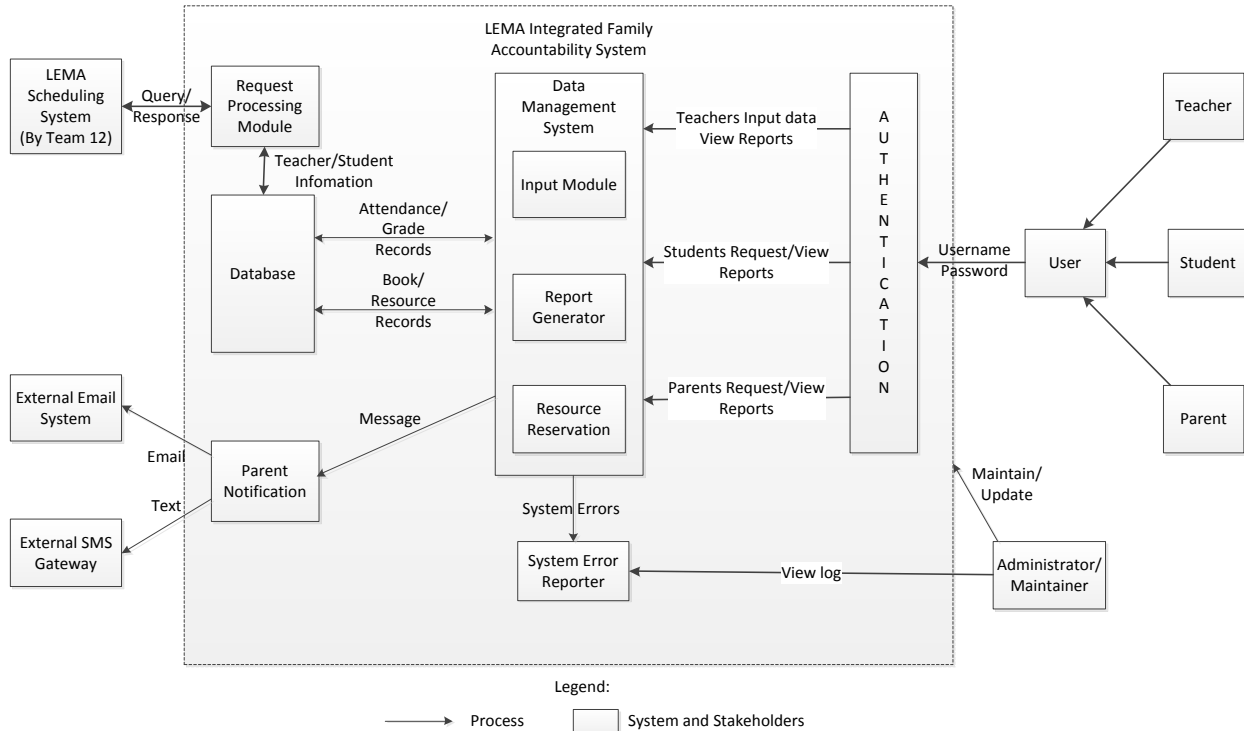## 3.3.1 Element Relationship Diagram

Figure 5: Element Relationship Diagram of LEMA Integrated Family Accountability System
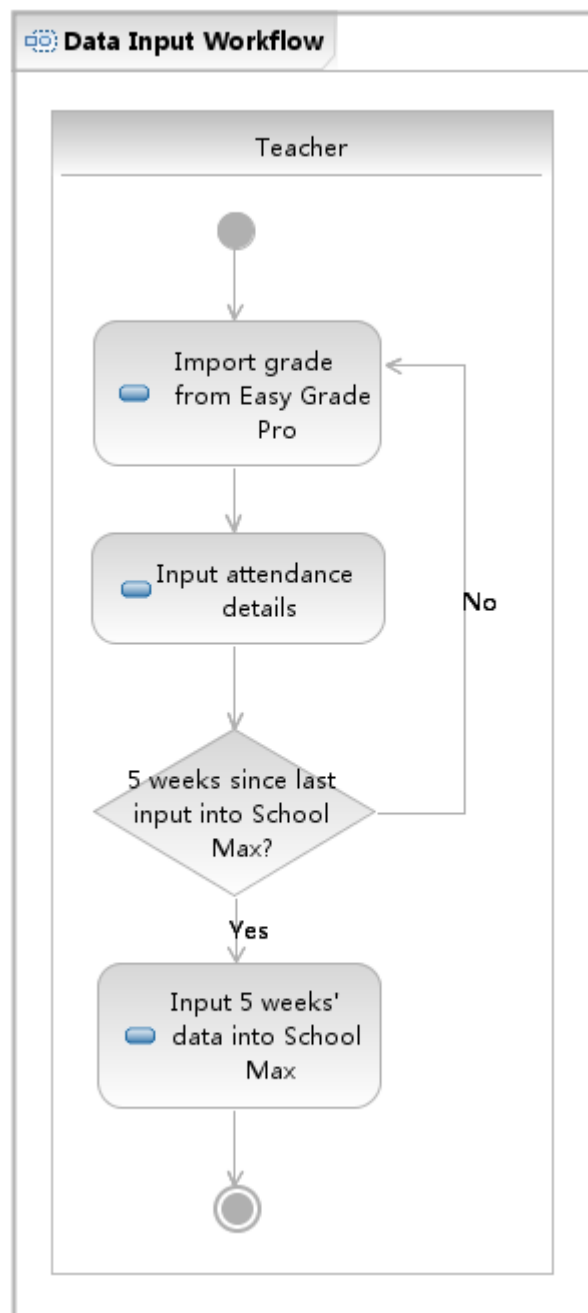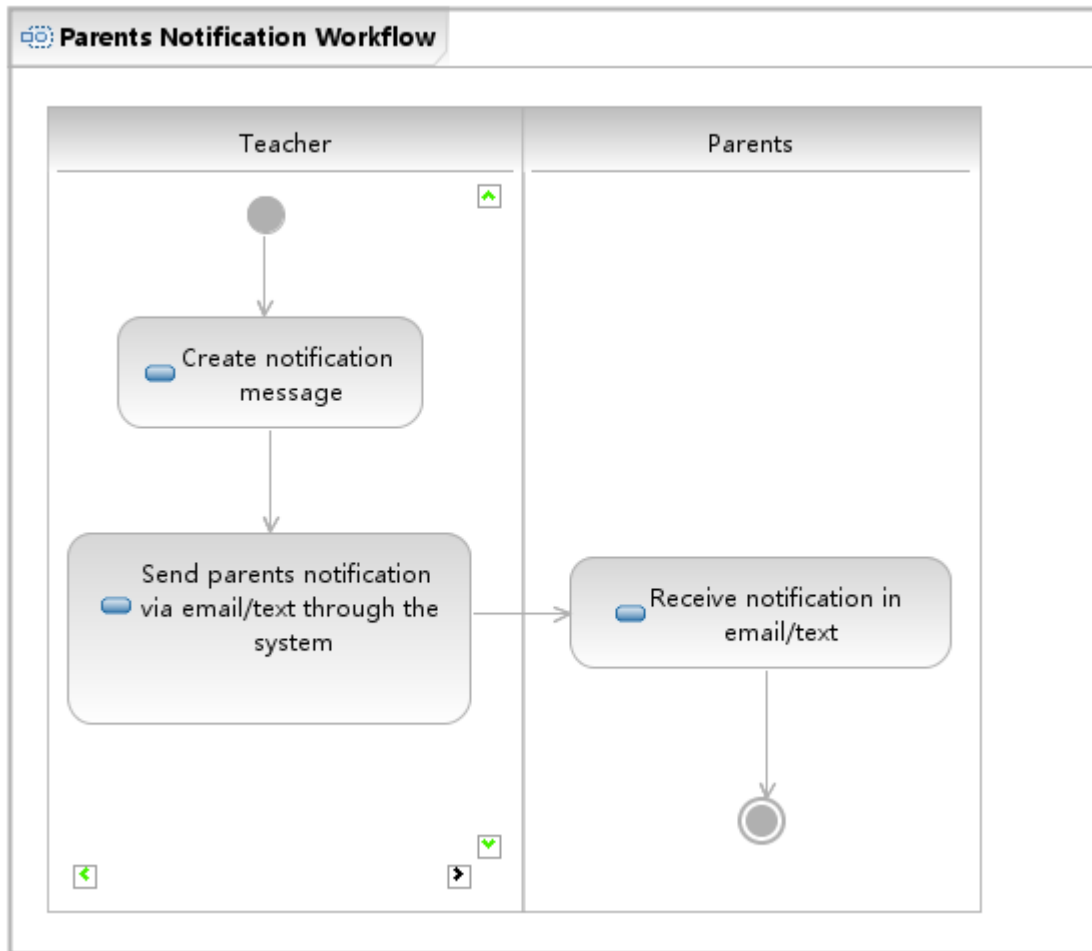
3.3.2 Business Workflows

Figure 6: Data Input Workflow

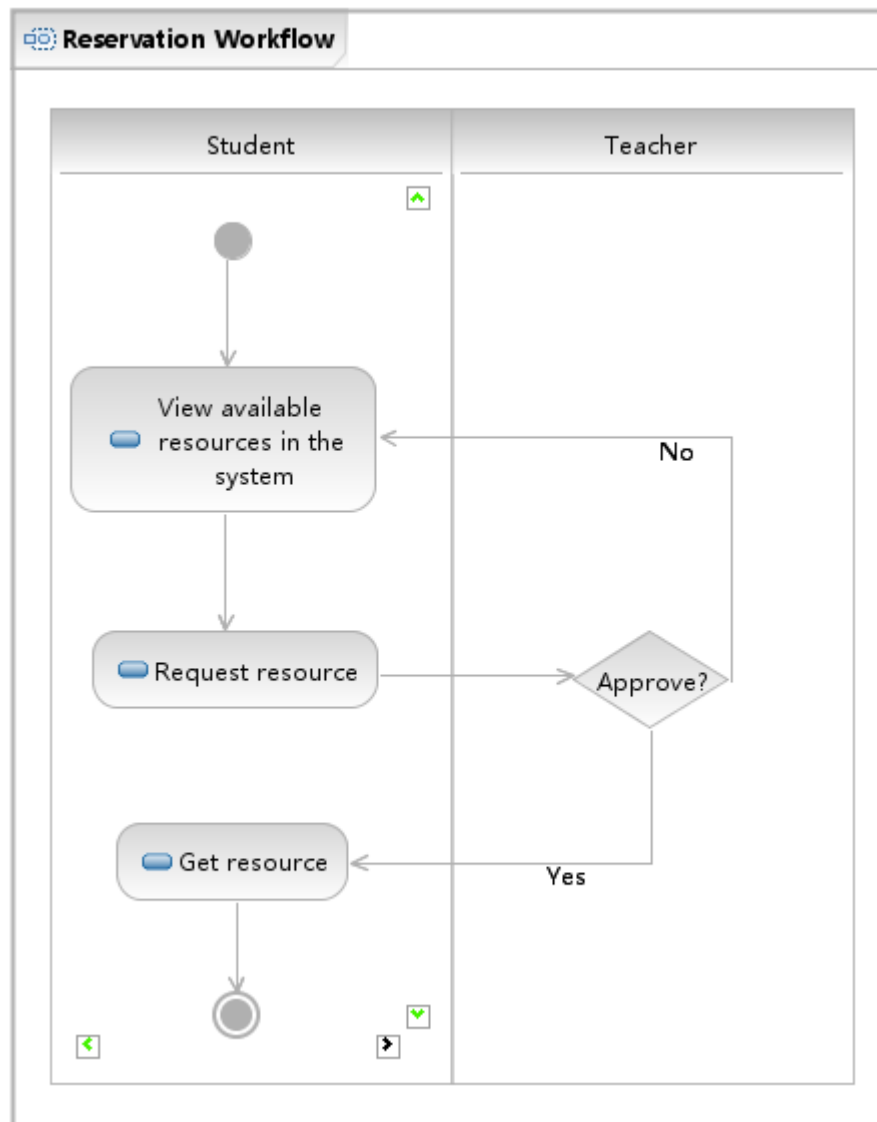**Figure 7: Parents Notification Workflow**

Figure 8: Reservation Workflow

3.4   Organizational and Operational Implications

3.4.1 Organizational Transformations

- The need to designate a new system maintainer as well as administrator who will manage the system's functionalities and users' access to the system.
- Elimination of the need for teachers to request approbation from other teachers/officers to contact parents.

3.4.2 Operational Transformations

- Teachers need to input students' attendance into new system and import grade details from Easy Grade Pro.
- Notifying parents via email and text online.
- Enabling teachers, students, parents access the students' performance online.
- Enabling teachers to manage resources borrowed by the students from the school.