

The Role of IT in Enhancing Student Money Management

Matthew H. S. Kuofie¹ Jihad Qaddour² Glen Hilton³ Josh Bland⁴
Illinois State University
USA

Abstract

Typically college is the first time that students are solely in charge of their money. Being on one's own for the first time is a new experience for many students. The freedom that comes with living on one's own, making new friends and being in charge of one's own money is a challenge for most students and a downfall for some. Most university websites only give general guidelines about how students should handle their finances. This is not good enough. To address the students money management problems, we propose a technique called a student money management (SMM). SMM has three main components: student, interactive student money management, and a database. The components collaborate to address the problems. In addition, we developed a computer software called student money management system (SMMS) to mimic the SMM. SMMS helps students manage the academic work and manage their money earning jobs.

Keywords: Academic performance, handling finances.

Introduction

Typically, college is the first time that students are solely in charge of their money. Being on one's own for the first time is a new experience for many. The freedom that comes with living on one's own, making new friends and being in charge of one's own money is a challenge for most students and a downfall for some (Office of Financial Aid, 2005-UI). Learning to manage one's money is an important part of educational experience at the University of Illinois at Urbana-Champaign. The Office of Student Financial Aid (OSFA) offers some tips to help students to manage their money. A student academic performance may drop because this student does not know how to manage academic work and money earning job. The authors have observed that the students in the information technology education required lots of time to dedicate to their academic work. The authors have also observed that students who spend too much time to work for money is not good; doing so negatively affect their academic performance; in some cases, such students flunk out of school. Therefore, students need to do some planning in order to handle the academic work and effectively management their monetary expenses. Unfortunately, most university websites only give general guidelines about how students

should manage their finances (Office of Financial Aid 2005-UI, Office of Financial Aid 2005-UW). This is not good enough.

To address the students money management problems, we propose a technique called a student money management (SMM). SMM has three main components: student, interactive student money management, and a database; the components collaborate to address the problems. In addition, we developed a computer software called student money management system (SMMS) to mimic the SMM. SMMS helps students manage the academic work and money earning jobs.

The rest of the paper is formatted as follows: Section 2 discusses related research. The student money management technique is described in Section 3. Section 4 describes a walkthrough of the system. Section 5 provides survey results and analysis of the proposed technique. Section 6 lists the benefits and concludes the paper.

Related Research

In this section we provide work that have been done to help students manage their money.

The University of Illinois web page only has common sense tips such as:

- Learn to Manage Your Money in College
- Think Before You Spend
- Get Advice from Others
- Have a Realistic Budget
- Your Main Goal is Your College Education
- Look for Freebies, Discounts, Coupons
- Keep Track of Monthly Expenses
- Try Keeping a Monthly Budget”

The University of Wisconsin at Eau Claire website provides information presented in Table 1. This table just gives general money managing tips. However, the table does not help students to plan and manage their money and academic work.

A non-university website like Forbes does not offer more detail on how to manage money and academic works (Reeves 2004). Reeves (2004) has better pictures, but still gives general advice such as:

“Apply for scholarships. This requires digging and persistence. See what's available. Don't be bashful. If you have a shot, apply. If it's a long shot, how can you go wrong for the price of a stamp?”

The above guidelines are not adequate for the students; therefore, we propose a technique called Student Money Management to address the students' problems.

Table 1. 2004-2005 Estimated Cost of Attendance. Source: (Office of Financial Aid 2005-UW)

Undergraduate				
	Wisconsin Residence	MN Residence	Non-Residence	Living with Relatives
Tuition and Fees	4,864	5,232	14,910	4,864
Room and Board - est.	4,130	4,130	4,130	
Basic Institutional Charges (full-time tuition and residence hall costs)	8,984	9,288	19,030	4,864
Estimates of additional expenses:				
Food expenses beyond the basic meal plan	390	390	390	2050
Books and Supplies - est.	400	400	400	400
Personal - est.	1,630	1,630	1,630	1,200
Transportation - est.	650	700	1,050	650
Total	12,054	12,408	25,500	9,154

Student Money Management

The Student Money Management has three main components: 1) Database, 2) students, 3) an interactive Student Money Management System.

There are two types of students: On campus students and off-campus students. And these types of students have specific inputs. In addition, every user/student provides common input.

As can be seen in Figure 1, every student enters 16 of basic inputs. Then based on whether a student is on- or off- campus, this student enters in either 2 or 8 more inputs as shown in the Figure 1. Once the interactive Student Money Management system receives all the inputs, it queries the database for the student's basic expenses such as tuition. The interactive system calculates their money surplus/deficient. The student is advised by the system to take appropriate actions such as reducing work hours and putting in more time for academic work.

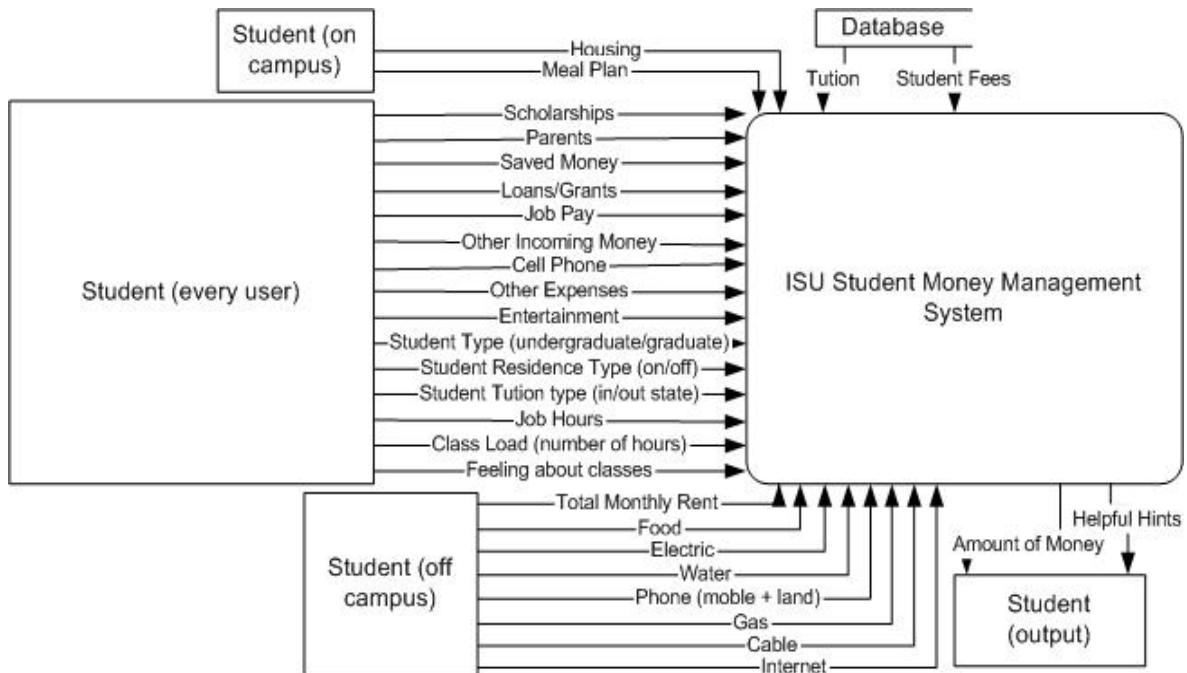


Figure 1. Student Money Management

Walkthrough

Using the classic waterfall software development life cycle (George, Joey F. et. al. 2002; Pressman 2005; Schach 2005), we developed Student Money Management System to mimic the SMM. (The SMMS was developed using java classes that we wrote and then returns helpful tips to the user based on their total and inputs, all in a JSP.) Figure 2 shows the environment in which the system operates (Satzinger et.al. 2004). The student uses the browser through the Internet to have the interactive SMMS, which resides on the server, to access data from the database (Olson 2000). The database tables such as tuition and fees are related by primary and foreign keys (Rob & Coronel 2004).

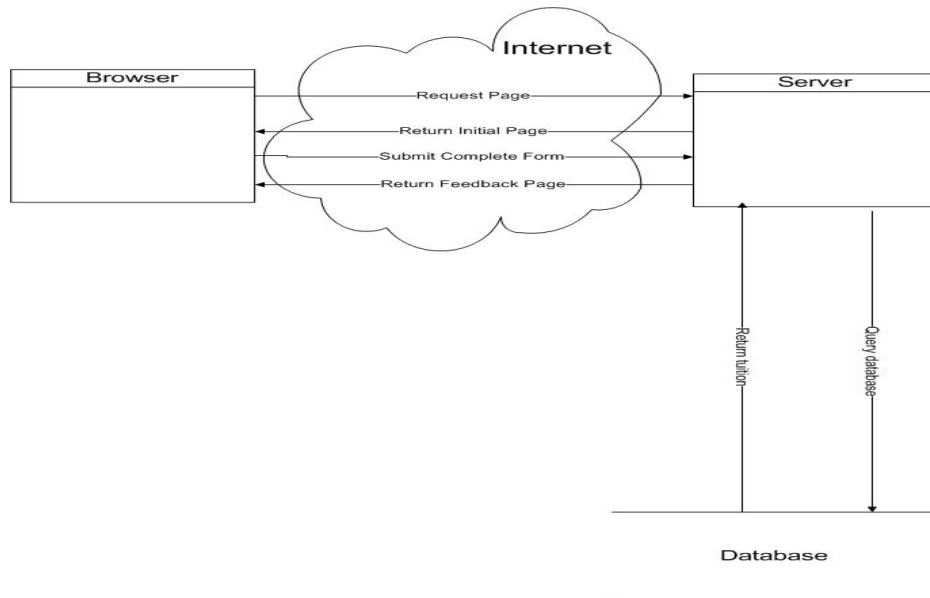


Figure 2. SMMS Architecture

Student fills out the form, Figure 3, with all his or her expenses, income, and other inputs, which vary depending on if the student is on or off campus.

The screenshot shows the "Student Money Management System" web form. The form is titled "Student Money Management System" and includes a "Help" link. It is divided into two main sections: "Income" and "Expenses".

Income Section:

Wage per hour	\$	
Number of hours worked per week		
Money from parents	\$	
Savings	\$	
Loans	\$	
Scholarships/Grants	\$	
Other Income	\$	

Expenses Section:

Student Residence Type: On Campus Off Campus

Student Tuition Type: In State Out of State

Student Type: Undergraduate Graduate

Cell Phone	\$	
Entertainment	\$	
Other Expenses and fees	\$	
Total Rent for Semester	\$	
Food	\$	
Electric	\$	
Water	\$	
Phone	\$	
Gas	\$	
Cable	\$	
Internet	\$	

Figure 3. Off Campus Student Input

Income

Wage per hour	\$	
Number of hours worked per week		
Money from parents	\$	
Savings	\$	
Loans	\$	
Scholarships/Grants	\$	
Other Income	\$	

Expenses

Student Residence Type: On Campus Off Campus

Student Tuition Type: In State Out of State

Student Type: Undergraduate Graduate

Cell Phone	\$	
Entertainment	\$	
Other Expenses and fees	\$	
Housing	\$	
Meal Plan	\$	

Other Questions

Number of hours of class: 0

Performance in classes: Poor Average Good

Calculate

Figure 4. On Campus Student Input

This form, Figure 4, is submitted to the server which handles all the processing (querying the database, adding the values up, and generating tips) then outputs everything to the screen.

Student Money Management System Results

Congratulations...You have a surplus of \$140.00, therefore you have more than enough income to satisfy your expenses.

Below is a summary, feel free to print this for your records.

Income	
Wage per hour	\$10.00
Number of hours worked per week	20.0
Money from parents	\$10.00
Savings	\$10.00
Loans	\$10.00
Scholarships/Grants	\$10.00
Other Income	\$10.00
Expenses	
Student Residence Type	Off Campus
Student Tuition Type	Out of State
Student Type	Undergraduate
Tuition	\$0.00
General Student Fees	\$0.00
Cell Phone	\$10.00

Figure 5. An Output

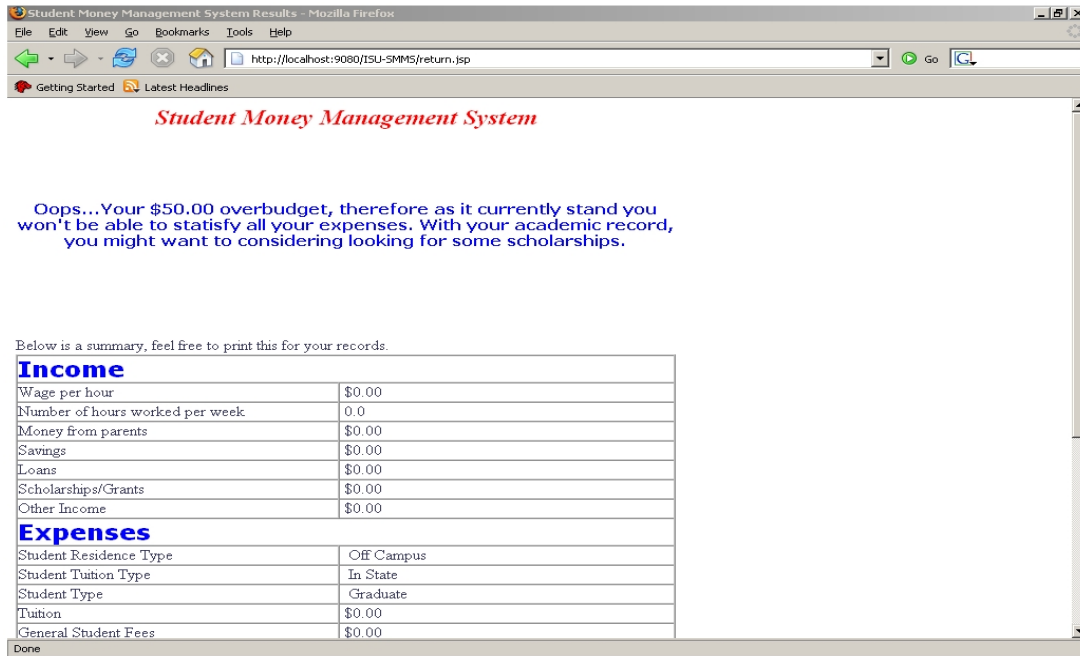


Figure 6. Another Output

Survey Results and Analysis

We had twenty students use our system for evaluation purposes. After the use of the system they were asked ten questions as shown in Appendix 1. Table 2 shows the collected data for the survey. To analyze the result, we will focused on the data that were collected on questions 2, 4, and 8, which addressed how the system helps solve the students money management problems. Figure 7 summarizes the responses of the questions 2, 4 and 8.

Q2. How well did the system solve your money management problems?

Not At All	Barely	Some	A Bit	Quite A Bit
1	2	3	4	5

Q 4 “How good was the feedback that the system gave you?”

Terrible	Poor	Adequate	Good	Excellent
1	2	3	4	5

Q8. How much do you think college students would use this system?

Not At All	Barely	Some	A Bit	Quite A Bit
1	2	3	4	5

Statistically the modes for questions 2, 4 and 8 were: A Bit (4), Good (4), A Bit (4) respectively. The modes are positive.

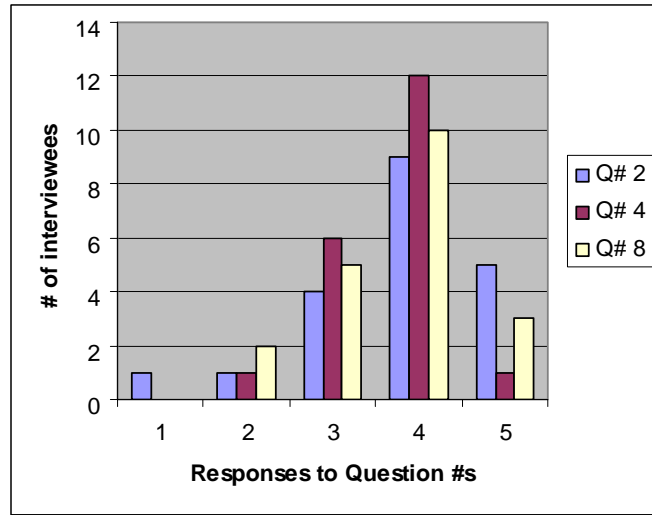


Figure 7. Effectiveness of SMMS

Table 2 . Collected Survey Data

Student	Questions									
	1	2	3	4	5	6	7	8	9	10
1	5	4	Books	4	5	15		4	4	
2	3	3		3	3	25	make it easier to read	3	3	doesn't the university already have some of this information?
3	4	4	computer expenses	4	4	15	explain the inputs better	4	4	
4	5	5	books, school supplies	4	5	15		5	5	
5	4	3	automobile expenses	4	5	17		4	4	
6	4	4	Books	4	5	18	I would like to see this with table format	4	4	Use tables to clarify your output
7	4	4	Music	4	4	20	it's ok	4	4	nice work
8	4	4	car stuff	3	5	19		4	4	
9	4	5		4	4	25		5	5	
10	4	4		3	5	30	is this for one semester?	3	4	It looks simple

Table 2 (continued). Collected Survey Data

11	4	5	car and rental insurance	4	4	17	make the help screen more visible	4	4	
12	5	5	gas for car/car payments	5	5	15		4	5	
13	3	3	school supplies	3	3	18	more than just word definitions	3	3	
14	5	4		4	5	17		4	5	
15	4	4	travel expenses transportation	4	5			4	3	I like the idea, but it needs refinement
16	5	5	costs	4	4	20	it's fine	5	5	It really helped me organize
17	5	4	car payments	4	5	18		3	3	does gas refer to natural gas for your apartment or gas for your car? Are these expenses per month or semester?
18	3	3		3	4	18		3	3	
19	3	1		2	3	30	Help screen needs to be more visible, didn't know there was one support phone number	2	1	Didn't know that tuition was pre calculated. Money from parents should be spending money. Should state that these are semester totals. Gas should be clearly labeled as gas for your home, not car.
20	3	2	Many music, school books, school supplies, car expenses(ins, gas, payments), other transportation costs,	3	2	16	make it easier to read, more visible, support phone number, explain the inputs better	2	3	I don't think it really helps me
										nice work, clarify output, gas for apt vs gas for car, expenses for semester, university already has some of this information

Benefits and Conclusion

Typically, a college is the first time that students are solely in charge of their money. Being on one's own for the first time is a new experience for many. The freedom that comes with living on one's own, making new friends and being in charge of your own money, is a challenge for most students and a downfall for some.

With this in mind we proposed a technique called a student money management (SMM). SMM has three main components: student, interactive student money management, and database. We developed a software called student money management system (SMMS) to mimic the SMM. SMMS helps students manage the academic work and money earning jobs. When students better manage their money they can concentrate on their studies. Students from our campus have tested the system to ensure it solves the problem we have defined. We had twenty students use our system and provide us with feedback in the form of a survey.

In future, this system would be vastly improved if it were to connect up to other university systems, therefore, the user would just need to enter in his or her username and password and some of his/her inputs, like tuition, and room and board would be done for them. With access to a student's class list, the system can figure extra class fees (lab fees, etc) into account for the student. Having access to the university's database would allow us to get rid of the current Microsoft Access database which is unreliable. There are many more tips that the system could potentially give to the user.

References

- Office of Financial Aid (2005-UI). University of Illinois, Urbana-Champaign, IL, *Money Management*. Retrieved May 1, 2005, from http://www.osfa.uiuc.edu/finaid_basics/money_manage.htm
- Office of Financial Aid (2005-UW). University of Wisconsin, Eau Claire *2004-2005 Estimated Cost of Attendance*. Retrieved May 1, 2005, from <http://www.uwec.edu/finaid/planning/costs.htm>
- Reeves, S. (2004). Financial Tips For College Kids. *Forbes Magazine*. Retrieved April 1, 2005, from www.forbes.com/finance/collegeplanning/2004/08/30/cx_sr_0830collegekids.html
- George, J. F., Hoffer, J. A., & Valacich, J. S. (2002). *Modern Systems Analysis and Design* (3rd ed.). Upper Saddle River, New Jersey: Prentice Hall.
- Olson, D. L. (2000). *Introduction to Information Systems Project Management*. Boston, MA: McGraw-Hill.
- Pressman, R. S. (2005). *Software Engineering A Practitioner's Approach*. (6th ed.). Boston, MA: McGraw-Hill.

Rob, P. & Coronel, C. (2004). *Database Systems: Design, Implementation & Management* (6th ed.). Boston, MA: Thomson Course Technology.

Schach, S. R. (2005). *Object-Oriented & Classical Software Engineering* (6th ed.). Boston, MA: McGraw-Hill.

Satzinger, J. W., Jackson, R. B., & Burd, S. D. (2004). *System Analysis and Design in a Changing World* (3rd ed.). Boston, MA: Thomson Course Technology.

¹ Dr. Matthew H. S. Kuofie is an Assistant Professor in the School of Information Technology, Illinois State University. His research interests include software engineering and business strategies. He can be reached at: School of Information Technology, Illinois State University, Normal, Illinois 61790-5150, USA. Email: mkuofie@ilstu.edu; +1 (309) 438-8338.

² Dr. Jihad Qaddour is an Assistant Professor in the School of Information Technology, Illinois State University. His research interests span the fields of emerging wireless communications systems, signal processing, Kalman Filter, and computer communication networks. He can be reached at: School of Information Technology, Illinois State University, Normal, Illinois 61790-5150, USA. Email: jqaddou@ilstu.edu; Phone: +1 (309) 438-8148.

³ Mr. Glen Hilton is an an undergraduate student at the School of Information Technology at Illinois State University.

⁴ Mr. Josh Bland is an an undergraduate student at the School of Information Technology at Illinois State University.

Appendix 1: Survey Questionnaire

1. How difficult was it to use the system?
 Very hard Hard Adequate Easy Very Easy
 1 2 3 4 5

2. How well did the system solve your money management problems?
 Not At All Barely Some A Bit Quite A Bit
 1 2 3 4 5

3. Are there any other incomes or expenses that should be included? _____

4. How good was the feedback that the system gave you?
 Terrible Poor Adequate Good Excellent
 1 2 3 4 5

5. How difficult was it to fill out the form?
 Very Hard Hard Adequate Easy Very Easy
 1 2 3 4 5

6. How many hours are too many to take while working a part time job? _____

7. What else would you want included in the help screen?

8. How much do you think college students would use this system?
 Not At All Barely Some A Bit Quite A Bit
 1 2 3 4 5

9. How much money is too much to spend on entertainment for one semester? \$_____.

10. Please put any general comments below.
