

# Business Requirements Document

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## REVISION HISTORY

Version Number	Changes	Date
1.0	Initial version	December 21, 2017
1.1	Formatting, wording, changes to assumptions, data requirements etc.	January 3, 2018
1.2	Grammar, final edits, etc.	January 10, 2018

# INTRODUCTION

Finance to Education (F2E) is a non-profit organization that supports the financial needs of students in their pursuit of education. All of F2E's current activities are managed manually, therefore, an IT solution would benefit F2E by streamlining all processes. The goal of this project is to support F2E in effective and cost-efficient service delivery by providing front-end and back-end information systems, including a website, mobile app, database, and interface for administration. This document provides the overall business requirements for all components of the project. The goal is to clarify and facilitate future developments of the IT system.

## 1.1 DEFINITIONS, ACRONYMS, INITIALISMS, AND ABBREVIATIONS (DAIAs)

The table below contains the collection of Definitions, Acronyms, Initialisms and Abbreviations specific to this project.

*Table 1: DAIAs*

DAIAs	Term	Definition
COTS	Commercial software off-the-shelf	A software that is ready-to-use
PVF	Pre-verification form	An initial application for a student
FERPA	Family Educational Rights and Privacy Act (U.S. Department of Education, 2015)	A federal law that governs the protection of student data
PCI DSS	Payment Card Industry Data Security Standards (The PCI Security Standards Council, 2016)	A security standard for proper use and storage of credit card information
F2E	Finance to Education	A non-profit organization that supports the financial needs of students pursuing a higher education
PII	Personally Identifiable Information (Wikipedia, 2018)	Information that can be used on its own or with other information to identify, contact or locate a single person, or to identify an individual in context
GDPR	General Data Protection Regulation (Wikipedia, 2018)	A regulation by which the European Parliament, the Council of the European Union and the European Commission

		intend to strengthen and unify data protection for all individuals within the European Union (EU). It also addresses the export of personal data outside the EU.
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## 1.2 BACKGROUND

F2E is a non-profit organization that provides financial support for students who are otherwise unable to complete their education due to financial difficulties. Founded in 2010, F2E currently supports over 200 students and is expected to grow 25% annually in the number of users and 40% annually by volume of data. Currently, all operations are completed manually, which greatly reduces efficiency and increases the workload for F2E staff. In addition, manual operations impose restrictions on F2E's scalability, and hinder its future development. Therefore, an automated IT system and an online platform are immediate needs.

## 2 BUSINESS OPPORTUNITY

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An IT solution will benefit F2E by being cost-efficient, secure, easy to learn and use, and designed with company growth in mind. Some business objectives include: replacing the current manual system with an automated data management system, creating approachable web and mobile interfaces, ensuring seamless adjustments to accommodate company growth, ensuring security with personal information and donation transfers, and reaching a broader user base through the renovation of F2E's website.

## 3 SCOPE

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### 3.1 IN-SCOPE CAPABILITIES

The IT solution will provide:

- A mobile app and a web browser interface with a registration and login system to provide different user groups with different capabilities.
  - General Public (applicants, parents, potential donors, potential mentors, etc.): submit pre-verification form, donate money, register as a donor, register as a mentor, and view publicly available information on F2E website.

- Sponsored Student: submit formal application, input and update basic personal information, and report academic performance, graduation status, expenses and withdrawals, class grades, credits and subjects.
- Donor: receive annual progress report and submit donations online.
- Staff: access to online database system that displays real-time data such as website traffic, user information updates etc.
- Administration management system for F2E staff that includes:
  - Information viewing.
  - Approval or rejection of application.
  - Capacity to generate organizational and programmatic reports.
- A communication system between donors, mentors, sponsored students and F2E staff.
  - Mapping between mentor and sponsored student to help establish a student-mentor relationship.
  - Communication between mentor and sponsored student.
  - Ability to send group emails to mentors, donors, and sponsored students.

## 3.2 OUT-OF-SCOPE CAPABILITIES

The IT solution will NOT:

- Manage financial accounts or handle financial transactions (donors will submit donations online using a third-party software).
- Include automation of staff decision processes, such as approving student applications. However, this feature could be added as a future enhancement.
- Keep track of sponsored students' performance after their graduation.

## 4 ASSUMPTIONS

The assumptions for our solution development and execution are listed in the following table.

*Table 1: Assumptions*

Category	Assumption ID	Assumption Description
1. Technologies	A-1.0	Assumes database system has the capacity to store information of at least 4,300 users (students, donors, mentors, F2E staff). This estimation is based on a calculation where the current number of students is 200 and the anticipated growth rate is 25% per year. Therefore, within five years, the total number of students will be about 600.

		Similarly, we assume that there are currently approximately 1000 donors, 200 mentors, and 6 staff members, and that these groups will grow at the same rate of 25% per year.
	A-1.1	Assumes that within five years the total amount of data usage will be about 21GB. This estimation is based on a calculation that each student user will use about 10MB and each mentor, staff, and donor user will use 1KB at an anticipated growth rate of 40% per year. It is also assumed that F2E will input 5 years' worth of previous data.
	A-1.2	Assumes concurrent users (total number of people using services) of database during peak periods could equal the total number of users — 4,300.
2. Finances	A-2.0	Assumes the price of commercial-off-the-shelf products and software will be at a non-profit rate.
3. Resources	A-3.0	Assumes technical support will be provided in various stages, including initial data migration from the manual process to the automated solution and after IT solution is put into use.
	A-3.1	Assumes periodic training on management of the deployed solution will be provided to F2E staff.
	A-3.2	Assumes F2E will assign an internal staff, outside consultant or volunteer to the role of database administrator.
4. Other	A-4.0	Assumes manual application submission will continue to be supported in addition to online applications.
	A-4.1	Assumes that a full business cycle is one year. Therefore, time to market of the IT solution should be contained within one business cycle to minimize the effect of changes in leadership roles and donors.

## 5 CONSTRAINTS

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Various types of constraints and their descriptions are presented in the table below.

Table 2: Constraints

Category	Constraint ID	Constraint Description
1. Deployment	C-1.0	The solution should be deployed to the cloud at the lowest possible cost.
	C-1.1	The solution must protect and provide security for personally identifiable information.
2. User interface	C-2.0	The website should be compatible with the mobile system.
	C-2.1	The website should be compatible with most operating systems: IOS, Android, or Linux.
	C-2.2	The mobile app should be available on iPhone and Android systems.
	C-2.3	The solution should support multiple languages.
	C-2.4	The solution should be easy to learn and use.
3. Scale	C-3.0	The solution should support 4,300 users. This constraint is based on A-1.0 in the Assumptions table.
	C-3.1	The solution should support 21 GB of data. This constraint is based on A-1.1 in the Assumptions table.
4. Time to Market	C-4.0	The time to market should be within one business cycle. This constraint is based on A-4.1 in the Assumptions table.
5. Other	C-5.0	The solution must follow all government regulations and standards, such as PII, PCI, etc.

## 6 RISKS

Risks that may cause disruptions or failure of solutions are listed in the table below. For each risk, a corresponding mitigation plan is also offered in the table.



Table 3: Risks

Category	Risk ID	Risk Description	Mitigation Plan
1. Technical risks	Rk-1.0	As with most IT solutions, the solution may be susceptible to hackers	Standard security protocol (Role-based security)
	Rk-1.1	If the number of concurrent users is greater than expected, slowdowns may occur	Periodic checks will be performed. If the number of concurrent users is close to a level that may cause slowdowns, an automatic alert will be sent to the database administrator.
2. Financial risks	Rk-2.0	Overall costs might exceed budget	Careful management of customer expectations to avoid unplanned expenses.
	Rk-2.1	If the amount of data is higher than expected, storage costs could increase	Automated checks and capacity warning sent to database administrator
3. Execution risks	Rk-3.0	F2E staff may not have enough internal technical capacity to manage or update the system	Provide trainings and documentation
	Rk-3.1	Manual application methods may not be automatically updated into the system	Require online data input for each phase; design an easy-to-use user interface.
	Rk-3.2	Failure to integrate existing data into the new database	Provide initial technical support
	Rk-3.3	Data migration process for manual applications may lead to incorrect data entry	Scanning and storage of manual applications is provided and required by the system for mistake proofing.

## 7 REQUIREMENTS

The following table provides the entity names and descriptions used in the Epics and User Stories.

*Table 4: User Groups*

User ID	Name of User (Entity)	User Description
U-1	Visitor	A member of the general public who visits the website including: potential donors, potential mentors, applicants, and parents
U-2	Sponsored student	A student that has been accepted into the program
U-3	Mentor	A mentor who provides guidance to sponsored students
U-4	Donor	A person who donates money to support F2E
U-5	Database Administer	A person who manages updating the database
U-6	F2E Staff	F2E employees including managers and coordinators

## 7.1 EPICS AND USER STORIES

*Table 5: Epics and User Stories*

Epics	User Story ID	User Story
E-1 Create a website to showcase activities, statistics and generic information about F2E.	US-1.0	As a visitor, I want to access information about F2E online, so that I can learn more about the program and how to support its mission.
	US-1.1	As a visitor, I want online access to the PDF version of the pre-verification form so that I can download the form and work on it while I am offline.

	US-1.2	As a visitor, I want the ability to use an online form to turn in my pre-verification form online so that I can apply for a home assessment to see if I qualify as a viable student candidate.
	US-1.3	As a visitor, I want to see a mobile-friendly website so that I can easily access it using my phone.
	US-1.4	As a visitor, I want the pre-verification form and website to be available in my native language so that I can understand the process.
	US-1.5	As an F2E staff that administers website content, I want to publish a multilingual website and add more languages as necessary so that our programs are inclusive and welcoming to all students.
	US-1.6	As an F2E staff that administers website content, I want to be able to have a website administrator log-in link on the home page so that I can easily access the website administrator user interface.
	US-1.7	As an F2E staff that administers website content, I want to be able to update the website content using a user interface (without having to know HTML and CSS) so that I can keep the website updated with informative and impressive data.
	US-1.8	As an F2E staff that administers website content, I want to be able to create logins for other content creators and set their privileges so that the website content is not dependent on only one person.
	US-1.9	As an F2E staff that administers website content, I want to be able to see website traffic statistics (unique visitors to site, unique visitors for a page) so that I can see what content is more effective.
E-2 Create a database for automatic gathering and storage of data.	US-2.0	As a visitor, I want to be able to register as a sponsored student/mentor/donor in order to make a user profile so that I can and edit my profile information, maintain my personal and contact information, and access information relevant to my role.

	US-2.1	As a sponsored student/mentor/donor, I want to be able to reset my password using my email, so that I can easily access my account if I forget my password.
	US-2.2	As a sponsored student, I want to be able to submit my status reports, certified summary of academic performance, and fund usage report online so that I can fulfill my tracking requirements in an easy and efficient manner.
	US-2.3	As a sponsored student, who is receiving donations for room, board, or miscellaneous expenses, I want the database to track when deposits have been made, so I can better manage my finances.
	US-2.4	As a sponsored student, I want to have the ability to submit my graduation status online at the end of my academic program so that I can meet F2E's requirements.
	US-2.5	As a mentor, I want to have online access to the annual progress reports of students I am mentoring so that I can track the grade statuses of my mentees.
	US-2.6	As a donor, I want the ability to submit my donations online so that I don't have to mail a check or drive to a physical location to drop-off the donation.
	US-2.7	As a donor, I want to have online access to the annual progress reports of students I am supporting so that I can be assured that the funds are put to proper use.
	US-2.8	As an F2E staff, I want to be able to upload and organize receipts from payments to educational institutions so that sponsored students' tuition/room and board can be tracked and accounted for.
	US-2.9	As a F2E staff, I would like to be able to send emails to a subset of users based on a custom query using any fields in the database (for example, an email to all donors or an email only to newly sponsored students) so that I can more efficiently communicate with stakeholders.

	US-2.10	As an F2E staff, I want the database to track all relevant data of sponsored students from the time of funding to the time of graduation so that tracking records are complete and accurate.
	US-2.11	As an F2E staff, I want access to sponsored students' status reports and fund usage reports so that I can ensure students are in good standing.
	US-2.12	As an F2E staff, when I login to my profile I would like to see a dashboard with data charts and visuals related to my role, so that I can prioritize my work and see important information at a glance.
	US-2.13	As an F2E staff in a coordinator role, I want to be able to track all my cases using the database so that I can easily schedule home visits.
	US-2.14	As an F2E staff in a coordinator role, I want to be able to input any data from my home visit assessments, including whether they were accepted or not, so that I have a complete picture of all applicants.
	US-2.15	As an F2E staff in a managerial role, I want to make reports and export data based on custom queries, so that I can use this data to inform strategy and for reports to funders.
	US-2.16	As an F2E staff in a managerial role, I want to be able to assign coordinators to cases, so that the selection process is more efficient.
	US-2.17	As an F2E staff in the role of database administrator, I want to be able to delete or add users and manage permissions so that only authorized users have access to sensitive data.
E-3 Create a mobile app	US-3.0	As a visitor, I want the ability to use an app to fill in my pre-verification form so that I can have more options of how to apply to be a part of F2E.
	US-3.1	As a sponsored student, I want the ability to use an app to log in to my user account, access my information, and turn in my reports so that I can have more options of how to fulfill my F2E requirements online.

	US-3.2	As a mentor, I want to be able to use an app to log in to my user account, access my information, and see students' progress, so that I can be more responsive to student questions.
	US-3.3	As a donor, I want to be able to use a mobile app to log in to my user account, access my information, make donations, and see student's annual reports, so that I can engage with F2E remotely.
	US-3.4	As an F2E staff, I want to be able to use an app to review applications, connect students to mentors, and see student reports, so that I can work even when I am not in front of a computer.
	US-3.5	As an F2E staff, I want access to usage-data of the app (how many downloads, what features have been used) so that F2E can use the information to continuously improve the user experience.
E-4 Add features to facilitate communication.	US-4.0	As a visitor, I want to be able to fill out an online form to send an email to the appropriate F2E staff so that I can ask questions about how to become sponsored student/mentor/donor, or learn more about the program.
	US-4.1	As a sponsored student, I want to be able to connect with and send direct messages to mentors through the app and/or web browser so that I can easily get help and mentorship.
	US-4.2	As a sponsored student, I want reminders for relevant deadlines (when my donations are available, when my donations funds are running low, when grade tracking is due, when reports are due, when graduation tracking is due, when mentor meetings are scheduled, etc.) so that I can meet my deadlines.
	US-4.3	As a sponsored student who is receiving donations for tuition, I want notifications about any payments made so that I know if my tuition has been paid on time and in full.
	US-4.4	As a mentor, I want to be able to connect and send direct messages to students in the app and/or on

		the web browser so that I can easily connect with and help students.
	US-4.5	As a mentor, I want reminders for when a student-mentor meeting is scheduled so that I am on time to the meetings.
E-5 Add features to automate certain tasks	US-5.0	As a sponsored student who is receiving donations for room, board, or miscellaneous expenses, I want to be notified when deposits have been made to the bank account that holds my donations, so I can pay my necessary expenses on time.
	US-5.1	As an F2E staff, I want the system to provide recommendations for mapping sponsored students to mentors.
	US-5.2	As an F2E staff, I want to be notified if sponsored students' grade tracking data or financial tracking data shows that the sponsored student did not meet requirements, so that F2E staff can take any necessary next steps.
	US-5.3	As an F2E staff, I want input fields for every application or report to be validated so that only correct data is inserted into the database.
	US-5.4	As an F2E staff, I want to be able to create or modify reminders to be sent automatically to sponsored students so that they are aware of these requirements and deadlines.
	US-5.5	As an F2E staff, I want auto-reminders sent to donors to thank them for donating and to encourage them to donate again so that F2E continues to fund students' educational pursuits.

## 7.2 SYSTEM QUALITY ATTRIBUTES (AKA: NON-FUNCTIONAL REQUIREMENTS)

*Table 6: Non-Functional Requirements*

Category	Requirement ID	Requirement Description
1. Operating Time Window Requirements	R-1.0	The database must be available at a minimum 99.9% of the time.
	R-1.1	The website and all applications must be available to users 99.9% of the time.
2. Maintenance Requirements	R-2.0	The maintenance schedule must be during non-critical hours and on days that will not impact services.
	R-2.1	The maintenance schedule must be published and accessible to all users.
	R-2.2	Proactive notifications must be sent to users for unanticipated downtimes.
3. Security Requirements	R-3.0	The database must have different user types (administrator, manager, coordinator, sponsored student, donor, mentor, visitor) with different privileges that limit their access to information.
	R-3.1	The sponsored students must only have access to the database when they are officially accepted until they either graduate or are no longer a part of the program.
	R-3.2	The F2E staff (managers and coordinators) must only have access while they remain a part of the staff.
	R-3.3	The donors must only have access to sponsored students' information for the academic year that they donated funding for and only for students that donors donated to.
	R-3.4	The mentors must have continued access to their login credentials while they are actively open to being a mentor or are currently mentoring.
	R-3.5	Encryption must be used to secure all sensitive data.
4. Portability Requirements	R-4.0	The applications must be accessible to all current browsers and devices. At a minimum, the website and app will be backward compatible with 5-year old devices.
5. Performance Requirements	R-5.0	The system must be able to handle 4,300 users at any given time with accuracy and efficiency.



6. Usability Requirements	R-6.0	Every part of the system must be intuitive such that a new user could use the system without documentation.
7. Testability Requirements	R-7.0	The applications that students interface with must be tested for compatibility with older browsers and hardware (phones, tablets).
	R-7.1	The database must be stress tested to ensure that it can stand 4,300 users at any given time.
8. Scalability Requirements	R-8.0	The system must be able to scale without issues, at a minimum, within the five year projection for concurrent users and total data usage.
9. Agility Requirements	R-9.0	The system must provide real-time information (in the form of dashboards and reports) that will lead to informed strategy and data-driven decision making.
10. Supportability Requirements	R-10.0	Most of the components must be commercial off-the-shelf (COTS) which will allow F2E to access all the documentation and tutorials that already exist for most of the functionality.
	R-10.1	The customized functionalities must be sufficiently documented.
11. Flexibility Requirements	R-11.0	The F2E staff must have the ability to add or modify screens and forms.
12. Applicable Standards	R-12.0	As it relates to financial records, the system must be compliant with PCI Version 3.2.
	R-12.1	As it relates to educational records, the system must be in compliance with FERPA when applicable
13. Environmental Requirements	R-13.0	The database and applications must support digital documentation that will minimize the need for paper records.

## 7.3 DATA REQUIREMENTS

*Table 7: Data Requirements*

Data Requirement ID	Data Requirement Description
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DR-1	The system must be comply with the Payment Card Industry data security standards (PCI DSS) for all data and processes related to financial transactions.
DR-2	All personally identifiable information (PII) must only be accessible on a need-to-know basis.
DR-3	The system must be compliant with any federal and state privacy laws.
DR-4	The system must be compliant with any federal and state minor consent laws.
DR-5	The system must protect sensitive student data such as information related to disabilities or immigration status. (U.S. Department of Health & Human Services, 2018)
DR-6	The system must be compliant with the General Data Protection Regulation (GDPR).

## 7.4 REFERENCES

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