1. Introduction

1.1 Project Overview

The ESIL-GS is a modified version of the Item Lookup that GameStop has currently. Enable Systems\* was tasked with creating a more efficient version removing the unnecessary and adding features for improving customer service. The current Item Lookup was cluttered with categories for describing an item that were rarely used, such as Sub-Category and the need for an '\*' before a description to broaden the search. Also, when searching for item availability outside of the store, the results would be displayed, on another window, with values from forty-eight (48) hours before and include arbitrary quantities, such as Less Than Four (<4), Between Four and Nine ( 4 - 9) and Ten or More (10+). The ESIL-GS will have the ability to update the quantities as soon as they are altered, by sales, returns, or receiving, and have the external search in the same window as soon as a zip code is chosen. The ESIL-GS will also have the option available for Retain, Secure and Order. The options, Retain and Secure, will be processed after confirmation from the other locale. The Order option will have the item delivered to the store for pickup when the item is not available in close proximity but is still in stock in the GS Warehouse.The ESIL-GS Package will be composed of the ESIL-GS Software, the ESIL-GS SRS, the ESIL-GS SDD and the ESIL-GS STD in addition to this document, ESIL-GS SPMP. The Start Date for the project was August 15, 2011, the End Date was November 2, 2011 and Delivery Date of November 3, 2011. During this time the project was developed two times a week formally and any other time individually by all group members. Documentation and execution of the project was done with personal laptops and several programs, such as Visual Studios, Visio and MS Office.

1.2 Project Deliverables

The ESIL-GS package consists of the software and the documentation for it:

* + **ESIL-GS Software**
    - To be delivered November 3, 2011
    - Polytechnic University of Puerto Rico
    - One (1) Copy of the Software will be delivered.
  + **SRS**
    - To be delivered November 3, 2011
    - Polytechnic University of Puerto Rico
    - One (1) copy of the document will be delivered.
  + **STD**
    - To be delivered November 3, 2011
    - Polytechnic University of Puerto Rico
    - One (1) Physical copy of the document will be delivered.
  + **SDD**
    - To be delivered November 3, 2011
    - Polytechnic University of Puerto Rico
    - One (1) Physical copy of the document will be delivered.
  + **SPMP**
    - To be delivered November 3, 2011
    - Polytechnic University of Puerto Rico
    - One (1) Physical copy of the document will be delivered.

1.3 Evolution of the SPMP

The use of this document is purely for documentation so if ESIL-GS were to be modified or altered, all documents related including the SPMP would be edited to be in sync with the changes. As such, this document will be edited every time the software is updated or if any unscheduled maintenance issue arises.

1.4 Reference Materials

The documents used for reference during these projects are:

* + Institute of Electrical and Electronics Engineers Standard for Software Project Management Plans
    - Std. 1058.1-1987
    - Institute of Electrical and Electronics Engineers, 445, Hoes Lane, P.O. Box 1331, Piscataway, NJ 0855-1331
  + Institute of Electrical and Electronics Engineers Standard for Software Test Documentation
    - Std. 829-1998
    - Institute of Electrical and Electronics Engineers, 445, Hoes Lane, P.O. Box 1331, Piscataway, NJ 0855-1331
  + Institute of Electrical and Electronics Engineers Recommended Practice for Software Requirements Specifications
    - Std. 830-1998
    - Institute of Electrical and Electronics Engineers, 445, Hoes Lane, P.O. Box 1331, Piscataway, NJ 0855-1331
  + Institute of Electrical and Electronics Engineers Recommended Practice for Software Design Descriptions
    - Std. 1016-1998
    - Institute of Electrical and Electronics Engineers, 445, Hoes Lane, P.O. Box 1331, Piscataway, NJ 0855-1331

1.5 Definitions and Acronyms

| Word / Acronym | | Definition |
| --- | --- | --- |
| ESIL-GS | | **Enable Systems Item Lookup for GameStop.** |
| Item Lookup | | **System used to find merchandise in a store.** |
| GS | | **GameStop** |
| GameStop | | **Client** |
| Retain | | **When an item is separated at another location.** |
| Secure | | **When an item is bought and held at another location.** |
| Order | | **When an item is sent from a warehouse to a store to be picked up.** |
| Word/Acronym | **Definition** | |
| SRS | **Software Requirement Specifications** | |
| SDD | **Software Design Descriptions** | |
| SPMP | **Software Project Management Plans** | |
| STD | **Software Test Documentation** | |
| MS | **Microsoft** | |
| OS | **Operating System** | |
| We | **Enable Systems, developers of the Enable Systems Item Lookup for GameStop** | |

2. Project Organization

2.1 Process Model

In developing the ESILGS, we decided to initiate the project with this document SPMP, to better keep track of the software development cycle. After writing the code for the program and compiling, the software entered testing mode. During this time, compatibility and functionality were tested. Following the data recompilation, we proceeded to make the activity, package and sequence diagrams. Finally, the information was put together to develop the SRS, which is the requirements for our ESILGS.

2.2 Organizational Structure

Enable Systems is comprised of five (5) members:

* Yanilette López Duprey – Team Leader #1 / Documentation
* Jonathan Meléndez Brady – Program Developer / Documentation
* Nilka Quiles González –Documentation
* Tania Peña Santana – Researcher / Documentation
* Víctor Rivera Díaz – Team Leader #2 / Programmer

Decisions within the organization are handled through voting. The changes must be discussed by the group, after which a debate will take place to find the advantages and disadvantages. Finally, the group will vote and majority decided whether the change will take place. Each meeting will be documented in the log book. The log book will have the same number of entries by each group member. Communication between group members will consist of phone calls, text messages and meetings. Generally, meetings take place every Tuesday and Thursday after 7:00pm with additional meetings taking place during weekends when members are available.

2.3 Organizational Boundaries and Interfaces

Being hired by GS to work on an integral part of their tool set, we give them updates and feedback opportunities so they can pitch in ideas of what they would like their system to do. They will also have access to the test builds for the program. Within the group, we all have access to the program but can only make changes or additions when the majority of the group agrees. As our company dictates, we shall make sure that the program is running smoothly with updates to the system every month for the first year, afterwards ESILGS will be updated two (2) times a year to make sure is it is running efficiently and at optimal conditions.

2.4 Project Responsibilities

The ESIL-GS and the documents associated with it were divided between members. Subsections were agreed upon during meetings and worked on section by section until the project was complete. The project responsibilities are detailed in Table 1:

| Assigned Work Responsibilities | Group Members Responsible |
| --- | --- |
| * ESIL-GS Software | * Jonathan Meléndez Brady * Víctor Rivera Díaz |
| * ESIL-GS SRS | * Yanilette López Duprey * Jonathan Meléndez Brady * Tania Peña Santana * Nilka Quiles González * Víctor Rivera Díaz |
| * ESIL-GS SDD | * Yanilette López Duprey * Jonathan Melendez Brady * Tania Peña Santana * Nilka Quiles González * Víctor Rivera Díaz |
| * ESIL-GS STD | * Yanilette López Duprey * Tania Peña Santana * Víctor Rivera Díaz * Jonathan Meléndez Brady |
| * ESIL-GS SPMP | * Jonathan Meléndez Brady |

Table 1: Project Responsibilities

3. Managerial Process

3.1 Management Objectives and Priorities

Enable Systems is proud to be working with such established clients such as GameStop. The first, most important priority is for the client to receive the product they requested. The privilege to work with their Item Lookup will not be taken for granted since an entire business is dependent on it. The measures will be in place for the source code from the existing software to be altered but be kept compatible with their current system setup. This will stem from constant communication from within the team. As such, any alteration to the system will be relayed to the other members of the group through e-mail or portable drives. Regardless of any alterations, updates will be realized weekly through the use of reviews to locate errors in the documents or the software.

3.2 Assumptions, Dependencies, and Constraints

The assumptions for this project are that the users will have clearance to use the system, the software will be installed on a Windows PC, that software will access the database for external searches. ESIL-GS will be dependent on the users knowing how to operate a computer for input, the computers having access to the internet in order to access the database, the servers and other hardware, such as computer, monitor, keyboard, being functional. The software will be developed from August 15, 2011 until November 02, 2011 when it will be ready for delivery. It will also be restricted to the time the group has to get together to work since the schedules for each member is limited due to jobs and additional courses.

3.3 Risk Management

ESIL-GS has a short development cycle and as such, developers have to turn in each part promptly in order to not upset the development timeline. If an emergency arises for a developer, another developer will take charge of the assignment in order to not have it fall behind. A team member is pregnant and does not have a due date, so certain assignments and topics must be covered in case she is unable to participate towards the end of the development cycle. Another step to minimize errors is the use of a GS sanctioned OS to be used for compatibility testing. In order for the software to be fully functional, GS employees, which will be the ones who utilize the product, will test out the software during its development to add feedback and report bugs.

3.4 Monitoring and Controlling Mechanisms

To keep a concise stream of progress going towards the project, tasks will be handed to each member per meeting. The tasks range from working on subsections, editing past documents and making diagrams. Each task will be reviewed by the group and if correct will be added to the intended document until further editing is needed. Each team member has their own personal workstation in order to do their parts. The tasks handed out to the members are detailed in Table 2:

|  |  |  |  |
| --- | --- | --- | --- |
| Assigned Work Responsibilities | Group Members Responsible | | Expected Duration |
| * ESIL-GS Software | | * Jonathan Meléndez Brady * Víctor Rivera Díaz | August 15, 2011 –  November 2, 2011 |
| * ESIL-GS SRS | | * Yanilette López Duprey * Jonathan Meléndez Brady * Tania Peña Santana * Nilka Quiles González * Víctor Rivera Díaz | Initial Date:  August 15, 2011 –  September 20, 2011  Revised Date:  September 20, 2011-  November 3, 2011 |
| * ESIL-GS SDD | | * Yanilette López Duprey * Jonathan Melendez Brady * Tania Peña Santana * Nilka Quiles González * Víctor Rivera Díaz | September 20, 2011 –  November 3, 2011 |
| * ESIL-GS STD | | * Yanilette López Duprey * Tania Peña Santana * Víctor Rivera Díaz * Jonathan Meléndez Brady | September 20, 2011 –  November 3, 2011 |
| * ESIL-GS SPMP | | * Jonathan Meléndez Brady | August 15, 2011 –  November 3, 2011 |

Table 2: Controlling Mechanisms

3.5 Staffing Plan

The ESIL-GS can be developed with a small group consisting of five (5) members. They, however, have to meet the requirements:

* + Experience with C++, C# and SQL.
  + Able to start August 15, 2011.
  + Able to work until November 3, 2011.
  + Must have time to attend meetings.
  + Must report to agreed meetings.

4. Technical Process

4.1 Methods, Tools, and Techniques

In order to bring this project together, extensive resources were needed. This includes, but is not limited to these tools:

* + Five (5) Laptops
    - Four (4) Windows OS
    - One (1) Macintosh OS
  + Visual Studios:
    - C++
    - C#
  + Oracle
  + USB Flash Drives (2, 4 and 8 GB)

Enable Systems employed an open floor method to add or remove ideas from the project, which were consequently voted on. This method was also applied to the tasks in order to decide if it should be redone. The software was test by a GameStop employee to test effectiveness and integration in regards to the proprietary GS OS that is used in the stores.

4.2 Software Documentation

The ESIL-GS was extensively documented during its development cycle. There are a total of four documents, including this one, detailing the software timeline. These are:

* SRS – It is a specification for a software product that performs functions in an environment. It addresses functionality, external interfaces, performance, attributes and design constraints.
* SDD – Shows how the software system will be structured to satisfy requirements identified in the SRS. It translates the requirements into a description of the software structure, software components, interfaces, and data necessary for the implementation phase.
* STD – Facilitates communication by providing a common reference frame. It functions as a completion test for the software, also providing grounds for evaluation of current test documentations,
* SPMP – The controlling document for managing a software project, it defines the technical and managerial processes needed to satisfy the requirements for the project.

4.3 Project Support Functions

For the first year after delivering the ESILGS, they software will receive software updates monthly if needed. After the first year the updates will be reduced to three for the year, every four months, before reaching the plateau at one every 6 months. The responsibility will belong to Victor Rivera and Jonathan Melendez, both programmer and developer for the software. The combination of routine maintenance and the updates are part of the quality assurance we will give to GS as guarantees that the system will work more efficiently.

5. Work Packages, Schedule, and Budget

5.1 Work Packages

In order to complete the project agreement, the client, GameStop, must receive the four (4) documents detailed in the Software Documentation section (4.2) in addition to the complete version of the ESIL-GS.

These documents are:

* The SRS
* The SDD
* The STD
* The SPMP (This Document)

5.2 Dependencies

The dependencies for these work packages are detailed in Figure 1:

Enable System Item Lookup for GameStop

Software Test Documentation

Software Design Description

Software Requirements Specifications

SPMP Figure 1

5.3 Resource Requirements

The resources used during this project are detailed in Table 3:

|  |
| --- |
| Resource |
| Personal Laptops |
| IEEE Standards |
| Visual Studios (C# and C++) |
| Microsoft Office (Word) |
| Visio |
| Pen |
| Logbook |
| SmartDraw |

Table 3: Resources used during project

5.4 Budget and Resource Allocation

5.4.1 Resource Allocation

The budget and resources used throughout the project tally is illustrated

in Table 4:

| Resource | Amount |
| --- | --- |
| Logbook + Pen | $43.85 |
| Food | $150 |
| Gasoline | $200 |
| Total | $393.85 |

Table 4: Resource Allocation throughout the Project

5.4.2Budget Allocation

The time worked by each group member and the total payment accrued can be found in Table 5:

|  |  |  |
| --- | --- | --- |
| Employee ($20/Hour) | Hours Worked | Total Payment |
| Yanilette Lopez Duprey | 25.30 | $506.00 |
| Jonathan Melendez | 19 | $380 |
| Tania Peña Santana | 29.38 | $587.60 |
| Nilka Quiles Gonzalez | 15.5 | $310 |
| Victor Rivera Diaz | 20 | $400 |

Table 5: Budget Allocation for Team Members

5.5 Schedule

The schedule followed during the developing of the project is shown in Table 6:

| Work Packages | Date Began / Date Due |
| --- | --- |
| SRS First Version | 08/15/2011 – 09/20/2011 |
| SRS Revised | 09/21/2011 – 11/03/2011 |
| SDD | 09/21/2011 – 11/03/2011 |
| STD | 09/21/2011 – 11/03/2011 |
| SPMP | 08/15/2011 – 11/03/2011 |
| PowerPoint Presentation | 10/30/2011 – 11/03/2011 |

Table 6: Schedule for Work Packages