

Team Proj18
Project Deliverable C: Design Criteria and Target Specifications
GNG 1103 – Engineering Design

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Introduction

From deliverable A, we concluded that the purpose of the design project was to create a platform that could integrate multiple loyalty programs to allow the horizontal transfer of points. The platform must also consider smaller businesses and involve them in the loyalty points economy. After determining the client's design criteria, they were listed and ranked in order of their perceived importance. For this deliverable, the goal is to reflect on the importance of each of the metrics from deliverable A and redefine the importance if necessary. Using this new schematic similar technical benchmarks will be compared to determine the best platform. At the end of this deliverable design specifications for our project will be established.

Design Criteria

After speaking with the client, a list of all functional requirements, non-functional requirements and constraints were considered which can be found in table 1.

Table 1. Functional Requirements, Non-Functional Requirements and Constraints

Functional Requirements	Non-Functional Requirements	Constraints
<ul style="list-style-type: none">• Method to freely transfer points between customers from different loyalty programs• Allow multiple loyalty point programs to be connected/integrated• Ways to obtain points, trade, buy, sell, donate• Customer specific point deals• A method to assign each loyalty point a value.• Allows for the businesses given out points to communicate with the users about deals, sales, new products, etc.• Able to be used on multiple platforms (pc, mac, iOS, android, etc.)	<ul style="list-style-type: none">• Intuitive and easy to use• Incentive for financial institutions to participate• Security/encryption to protect user data• Free to use platform	<ul style="list-style-type: none">• Development Cost (<\$50)• Software platform• Can it be realistically done within the given period. Must be completed by design day

Using the criteria from table 1 an evaluation matrix was created as seen in table 2 which can be used to rate each of the technical benchmarks and prototypes later in the design process.

Table 2. Evaluation Matrix for Loyalty Program Solution

Number	Need	Importance ¹
1	A method to freely transfer points between customers from different loyalty programs. (Trading, buying, donating). Interchangeability between points.	5/5
2	Method to quantify the value of each loyalty point and establish a baseline.	4/5
3	Security system to protect information.	3/5
4	Incentives for financial institutions to participate.	2/5
5	Allow for the use of smaller players. Easy for any business to participate	3/5
6	Easy to use and intuitive	2/5
7	Integrated system between loyalty programs	5/5
8	Able to be used on multiple platforms	3/5
9	Cost to use service	2/5

¹Importance was rated numerically with the lowest value being 1 and the highest value being 5.

A concept that is like a platform that allows the transfer of virtual points is the stock market. The stock market is similar to our desired product by allowing companies to list virtual points (stocks) on the market and allowing stock value to be determined democratically by retail customers and investors. Banks and other financial institutions provide retail investors with brokerage accounts that have different transaction fees for trades and other benefits depending on the account type.

PC Optimum is an independent loyalty points program that only allows stores owned by Loblaws. These businesses include Shoppers Drug Mart, Loblaws, and Super Store. They allow horizontal transfer in loyalty points but only between the Loblaws stores since they share the same system.

Another system that allows for the trading of virtual items is the “auction house-Esque” system such as Steam Market and RuneScape's Grand Exchange. Both markets allow users to sell virtual items obtained through video games. Items are valued depending on the rarity with prices determined by users through the laws of supply and demand.

The only known loyalty points platform that allows for the selling and buying of loyalty points is Points.com. This website allows you to sell and buy points and includes points partners like West Jet, Aeroplan Ana, and AirEuropa.

Table 3. Technical Benchmarking of similar products on the market

Specification	Similar Products				
	TD Bank brokerage account	PC Optimum app	RuneScape Grand Exchange “Auction House”	Steam market	Points.com
Level of security	Password protected with secondary authentication	Password protected, 2-step verification,	Password protected, authenticator, in-game bank	Password protected with secondary authentication	Password protected

		Physical Card unprotected	pin, 2-step verification		
Resource price benchmarking	Securities' price determined by market/financial institutions	10000 points is \$10 determined by Loblaws	Determined by customers	Determined by customers	Determined by Points.com
Platforms available	Phone app, browser software	Phone app, loyalty card, browser	Accessed in-game on PC and Mobile	Phone app, computer application, browser software	Browser software
Allow for smaller players	Listing must be authorized by Securities and Exchange commission	Only Loblaws Companies	Only Runescape in-game items	Any game developer can create collectibles	Only partnered companies
Transferability between similar programs	Need cash intermediate	No	In-game currency or other in-game items	Cash intermediate or personal trading; Cash cannot be withdrawn	Cash intermediate
Cost to use service	Standard commission per trade vs Active trader pricing	Free	Free (3 trade slots) vs paid membership (8 trade slots)	Free	Free - Membership closed at the moment
Easy to use	No	Yes	Yes	Yes	Yes

Table 4. Computing the best technical benchmark using design criteria

	Products				
Specification	TD Bank brokerage account	PC Optimum app	RuneScape Grand Exchange "Auction House"	Steam market item trading	Points.com
Level of security	4 x 3 = 12	4 x 3 = 12	4 x 3 = 12	4 x 3 = 12	2 x 3 = 6
Price benchmarking	3 x 4 = 12	1 x 4 = 4	5 x 4 = 20	5 x 4 = 20	3 x 4 = 12
Platforms available	4 x 3 = 12	4 x 3 = 12	1 x 3 = 3	3 x 3 = 9	2 x 3 = 6
Allow for smaller players	4 x 3 = 12	1 x 3 = 3	3 x 3 = 9	3 x 3 = 9	3 x 3 = 9
Transferability between similar programs	4 x 5 = 20	1 x 5 = 5	1 x 5 = 5	3 x 5 = 15	3 x 5 = 15

Cost to use service	1 x 2 = 2	5 x 2 = 10	4 x 2 = 8	5 x 2 = 10	3 x 2 = 6
Ease of use	2 x 2 = 4	5 x 2 = 10	3 x 2 = 6	4 x 2 = 8	1 x 2 = 2
Sum¹	74	56	63	83	56

¹The score is calculated with the weight (perceived importance) in Table 2 multiplied by the score out of 5. The best score a specification can get is 5 and the lowest is 1.

Using our design criteria, we determined the best technical benchmark for our project is Steam market item trading as seen in table 4.

Conclusion

The design specifications we hope to aim for are stated in table 5.

Table 5. Design Specifications for our project.

	Design Specification	Relation (=, <, >)	Value	Units	Verification Method
1	Level of Security	=	Secondary authentication	N/A	Test
2	Price benchmarking a way to quantify the value of points.	=	Yes	N/A	Test
3	Freely transfer points between customers from different loyalty programs.	=	Yes	N/A	Test
4	Ease of use	=	Yes	N/A	Test
5	Cost of design	<	50	\$	Adding up expenses
6	Incentives for financial institutions to participate.	=	Yes	N/A	Ask financial institutions
7	Cost to use service	=	Free	N/A	It's free

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