Team Proj18

Project Deliverable D: **Conceptual Design**

GNG 1103 – Engineering Design

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Abstract

Previously, design specifications were identified to facilitate discussion on designing an application to facilitate the transfer of loyalty points between programs. With the listed criteria, each group member created a conceptual design with subsystems that addressed each of the design criteria. In this document, each of the models were explored and benchmarked to one another. From the technical benchmarking, a new revised design was considered that integrated the best overall concept with harmonious subsystems of other concepts.

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1) Introduction

The goal of this deliverable is to model potential platforms that can integrate multiple loyalty programs and facilitate the horizontal transfer points between them. The program should be intuitive to use and allow smaller players to be involved in the economy of the point. After empathizing with the client in deliverable B and creating the design criteria for the problem in deliverable C our group has created five potential concepts as the solution for the problem statement. In this report, three designs will be discussed and benchmarked using our design criteria to determine the overall best solution for the client. The two extra designs are listed in the Appendix of this report.

The three schematics that are in the report include:

1. Simon's idea: Loyalty Points "Stock Market" Idea
2. Craig's idea: Universal Points Idea
3. Steven's idea: Engagement Points Idea

The design criteria from deliverable C are shown in Table 1 and this matrix will be used to compare each solution for each of their subsystems.

Table 1. 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	Allow for the use of smaller players. Easy for any business to participate	3/5
5	Method to earn points	2/5
6	Integrated system between loyalty programs	5/5
7	Able to be used on multiple platforms	3/5
8	Cost to use service	2/5

2) Conceptual Design 1: “Stock Market” Idea

The Loyalty Points Stock Market idea is analogous to the stock market in that loyalty points are listed instead of companies on the trading platform. The calculated price of each loyalty point uses a baseline value and the perceived market value of retailers. That allows point value to be controlled democratically by retail customers. Customers can connect their existing loyalty points to the platform by linking their profiles and freely trade, buy and sell at the specified market value. The browser view of the platform is shown in the following figures.

Figure 1 shows the home menu for the platform once the user has logged in. The display includes accumulated points on the side in a points wallet while also displaying transaction history below. On the middle left, the features deals tab allows points providers a method to show promotions specific to the customer. Additional features shown in the figure include a home button that allows easy navigation and a search bar to look up specific loyalty points.

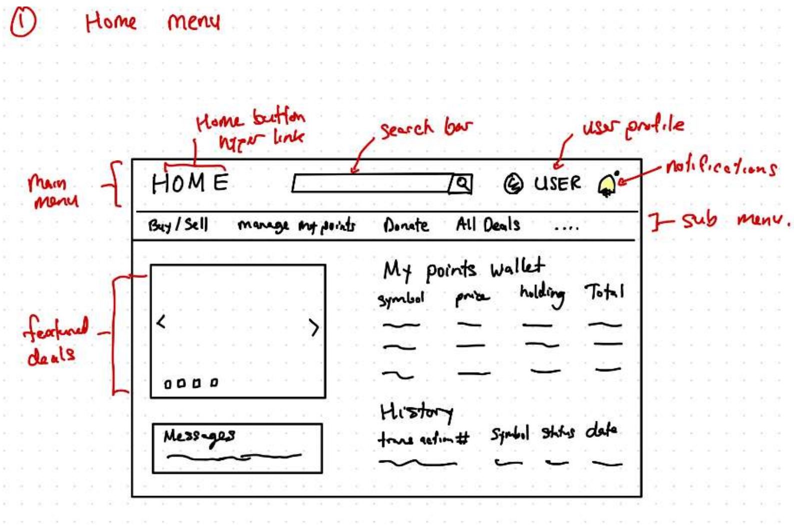

Figure 1. The home menu for conceptual design 1.

Figure 2 is a display for the platform under the manage my points submenu. In this part of the platform, the user can manage their points wallet by seeing the cash and points breakdown in the wallet. Included is a pie chart to provide a visual display of the percent of points and cash. Customers can also buy additional points and sell their points from the wallet in this submenu.

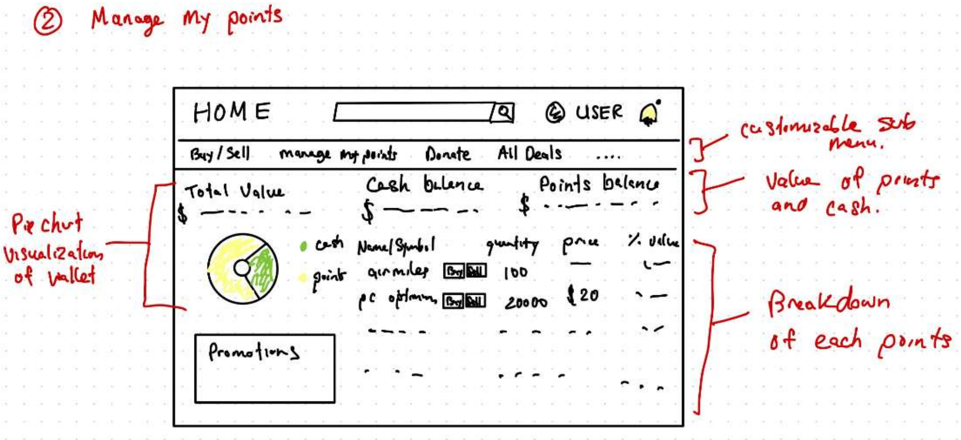

Figure 2. Manage my points display for conceptual design 1.

Figure 3 is the interface the user uses to buy and sell their points. In this section of the platform, users can add money to update their cash balance in the wallet, and loyalty points can be searched by symbol or name in the search bar. The user can then specify if they wish to buy or sell. The current holdings provide a summary of the wallet is shown on the right, and on the bottom, the user can see recent trades they've made.

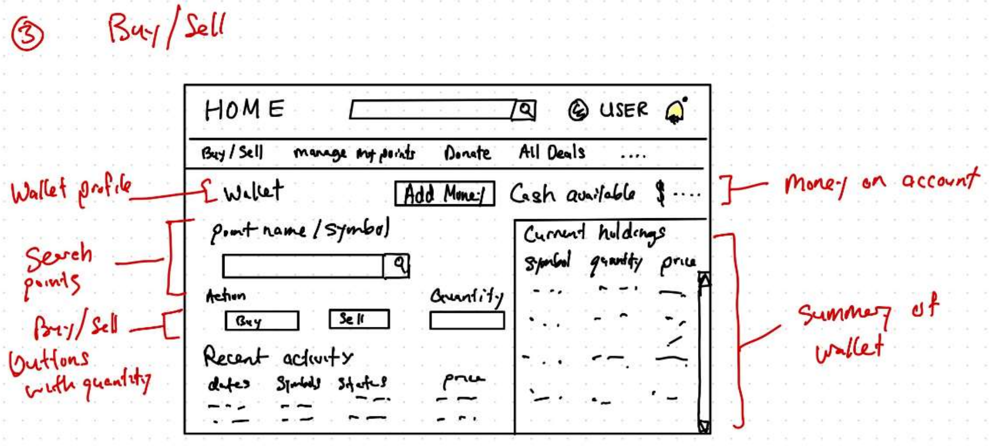

Figure 3. The Buy/Sell interface for conceptual design 1.

Figure 4 shows the screen the user will use to edit their account settings. With this interface, users can connect or remove existing loyalty points programs to their platform account and edit their display settings. For security, users can add secondary authentication measurements to increase the protection of their wallets.

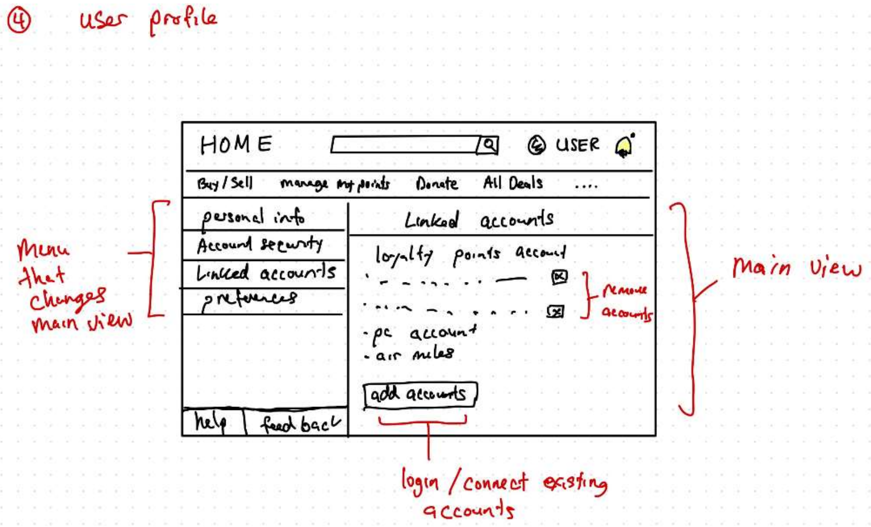

Figure 4. The user profile interface for conceptual design 1.

3) Conceptual Design 2: Universal Points Idea

The Universal Points idea is the idea of creating a platform for businesses and banks to buy into. The platform would use a universal point system that can be collected at any business that is a part of the platform. The banks would be entry point for users to get involved with the program. The banks would be responsible for creating rewards which could be from a large variety such as discount codes for stores on the platform, cash or paying off credit card payments, stocks or many other options for rewards as well as determining how much points are earned with purchases. The points "card" would be linked to the user's credit card or debit card to be used at purchases with streamlines. To entice the banks, they would want to participate to make them more appealing to customers and to entice the business they would receive lots of data gathered by the platform.

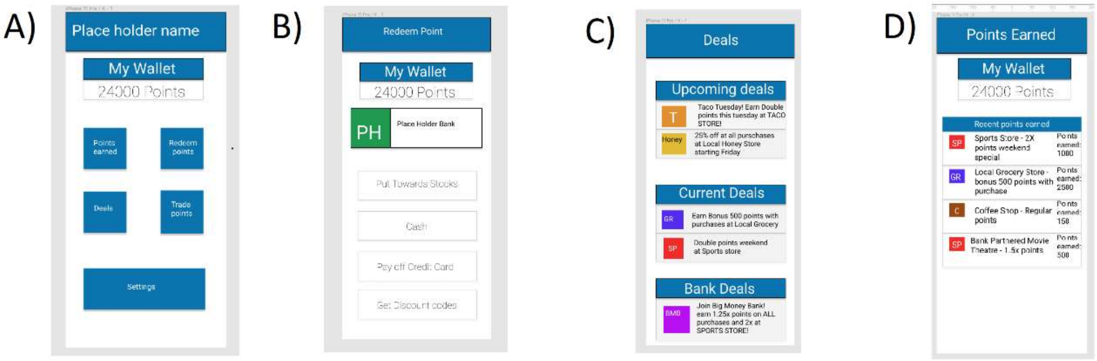
A)
Place holder name
My Wallet
24000 Points
Points earned
Redeem points
Deals
Trade points
Settings
B)
Redeem Point
My Wallet
24000 Points
PH
Place Holder Bank
Put Towards Stocks
Cash
Pay off Credit Card
Get Discount codes
C)
Deals
Upcoming deals
T
Taco Tuesday! Earn Double points this tuesday at TACO STORE!
Honey
25% off at all purschases at Local Honey Store starting Friday
Current Deals
GR
Earn Bonus 500 points with purchases at Local Grocery
SP
Double points weekend at Sports store
Bank Deals
BMB
Join Big Money Bank! earn 1.25x points on ALL purchases and 2x at SPORTS STORE!
D)
Points Earned
My Wallet
24000 Points
Recent points earned
SP
Sports Store - 2X points weekend special
Points earned: 1000
GR
Local Grocery Store - bonus 500 points with purchase
Points earned: 2500
C
Coffee Shop - Regular points
Points earned: 150
SP
Bank Partnered Movie Theatre - 1.5x points
Points earned: 500

Figure 5. The application interface for the universal points idea.

Figure 5A shows the home screen of the platform, this would be the screen that a user would see when they open the mobile app version of the product. It allows them to easily navigate to the other systems of the app.

Figure 5B shows the redeem points system in the app. This section would be associated with the user's bank and would allow them to redeem their points based off the different redeeming options that the bank offers. Different banks could offer different things creating a sense of competition between banks.

Figure 5C is the deals screen that allows businesses and banks that part of the platform to broadcast sales, point deals, exclusive offers, promotional events along with various other things. This is meant to encourage the users to go shopping to earn points as well as to encourage businesses to participate because they will gain a great advertising platform.

Figure 5D shows a screen that tells the user all the places they have recently earned points at as well as how the points were earned. For example, some stores my give a multiplier or bonus points based off a promotional event or deals with a user's specific bank. This system is designed to help make it easier for the user to keep track of the points they have earned.

4) Conceptual Design 3: Engagement Points Idea

The Engagement Points concept focuses on creating a platform for businesses to improve engagement with customers. The platform would add onto existing business' point systems by introducing further ways to gain points. Surveys and advertisements could be offered to customers through the platform to improve business engagement metrics and gain valuable feedback. By participating in these activities, users would gain points towards the business' existing system but also generate novel tokens for our platform. These tokens themselves could be exchanged for points at other businesses or redeemed for monetary gift cards.

Figure 6 shows the general interface the user would be greeted with upon logging in. They can see the list of partnered companies on a banner and search for them. A rolling gallery would display promotions paid by companies that the user has indicated they are interested in. The tables would show their earned points for each company as well as their history of point transaction if any.

Figure 7 displays an example of a company page after the user has clicked on them. Point history with the company would be displayed on the left while engagement activities or promotions for points would be listed on the right. The user would be able to participate in the activities and earn points directly towards their "wallet".

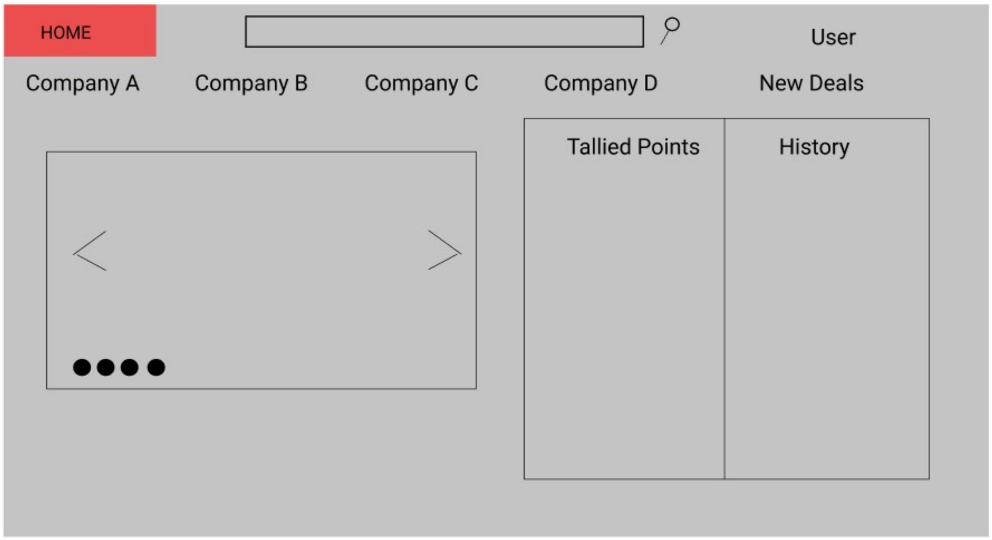

Figure 6. General Application Interface

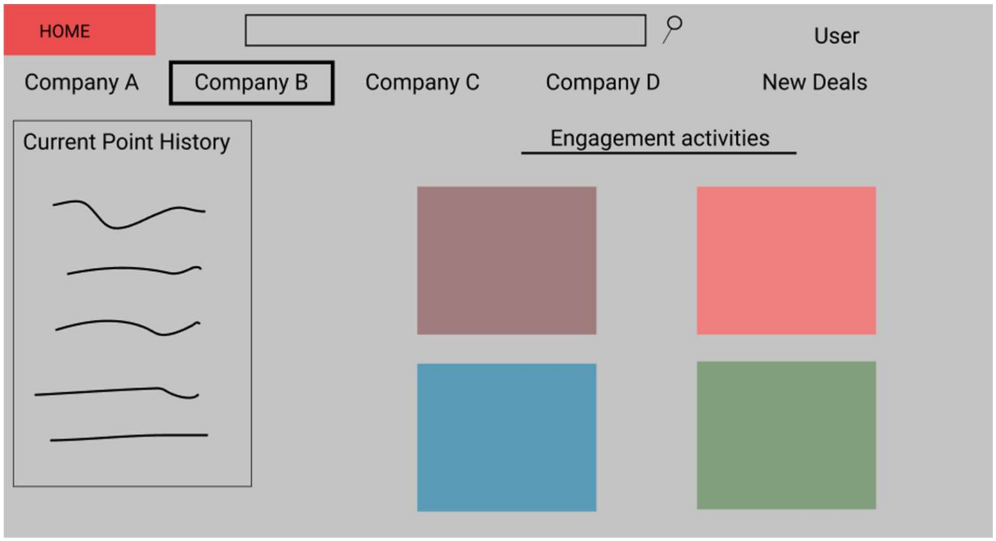

Figure 7. Company Specific Interface

5) Design Benchmarking

One of the drawbacks of the first design is not having an exact analytical calculation to determine the value of each loyalty point. This platform uses the perceived market value meaning the value of each loyalty point will change and fluctuate. The platform also does not address a method for smaller players to be integrated into the economy. In the design, loyalty point programs are added after a screening process to ensure that the points added to the platform are valid to protect consumers, but the method has not been determined. The schematic addresses the design criteria to allow the transferability between other loyalty programs, but this is through a cash intermediate rather than a point-for-point trade. Secondary authentication for the platform is included for an extra layer of security. The platform would need a fee to help pay for the maintenance requirements of the application.

A drawback of the second design is that it requires a lot of participation for it to really take off. If business is not willing to ditch their original points programs than it will not take off as there would be little benefit of having a points system that only has a few businesses taking part. The same is also true with banks. If banks do not provide good rewards the no users will want to participate, and no banks or businesses will jump aboard. That would be the main drawback of the design and cannot really be fixed without altering the core of the design.

The strength of the third option is that it allows existing point systems to exist concurrently with the adjacent system being introduced by our platform. By adding engagement activities and a platform to track points, users would be more incentivised to generate points with each business and earn their respective rewards. The drawback would be getting businesses to adopt the token value associated with their point. Some features such as banner promotions or options to implement diversified engagement activities may be price restricted for businesses and thus the platform would be less attractive.

Table 2. Technical benchmarking of the three conceptual models

	Design		
Specification	Conceptual Design 1 "Stock market"	Conceptual Design 2 Universal Points	Conceptual Design 3 Engagement Points
Level of security (3)[2]	• Secondary authentication • (4/5) • 4 x 3 = 12	• Optional secondary authentication • (2/5) • 2 x 3 = 6	• Optional secondary authentication • (2/5) • 2 x 3 = 6
Price benchmarking (4)	• Benchmark value with fluctuating value bested on perceived market value. • Complicated calculation • (4/5) 4 x 4 = 16	• Universal points is set by the bank that the user is collecting with. • Bank could control point • (2/5) • 2 x 4 = 8	• Benchmark value with novel token that can be controlled by bank institutes • Complicated calculation • (4/5) • 4 x 4 = 16
Platforms available (3)	• Browser and mobile • (5/5) • 5 x 5 = 25	• Only mobile • (2/5) • 2 x 3 = 6	• Only browser • (2/5) • 2 x 3 = 6

Allow for smaller players (3)	- Not direct method to incorporate smaller players. Small businesses need to be approved - (2/5) - 2 x 3 = 6	- Smaller platforms are easily able to participate on the platform just like large businesses - (4/5) - 4 x 3 = 12	- Relative ease for smaller players to join. Some businesses may be priced out from certain features - (3/5) - 3 x 3 = 9
Transferability between similar programs (5)	- A cash intermediate is required to transfer between loyalty points. - (3/5) - 3 x 5 = 15	- Universal points would not require transferability. This is limited to businesses that have joined the platform - (4/5) - 4 x 5 = 20	- A token intermediate is required to convert loyalty points to another. - (3/5) - 3 x 5 = 15
Cost to use service (2)	- Not free - (2/5) - 2 x 2 = 4	- App is free to use, however banks my charge fees for their points platforms - (4/5) - 2 x 3 = 8	- Small lifetime subscription fee - (3/5) - 3 x 3 = 9
Method to earn points (2)	- No method to earn points only by linking existing points. - (1/5) - 1 x 2 = 2	- Points are earned with every purchase with a business that apart of the platform - (4/5) - 4 x 2 = 8	- Points can be earned through engagement activities such as watching ads or participating in surveys. - (3/5) - 3 x 2 = 6
Sum	80	68	62

[1] Importance out of 5.

[2] The score is calculated with the 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.

6) Conclusion

Through our technical benchmarking, we determined that design one scored the highest using our design specifications. Even though the design had a better overall rating, some of the subsystems in concepts two and three provided better options for their respective design specifications. The method to earn points via engagements in concept three was better compared to the other two systems. Universal points (concept two) allow smaller players to easily participate on the platform. As such, it would be valuable to consider the possibility of implementing these ideas with the stock market concept. The future model will use the existing subsystems in model one but further testing is required to determine feasibility on including those implementations.

7) Appendix

a. Conceptual Design 4: Shuyuan's Idea

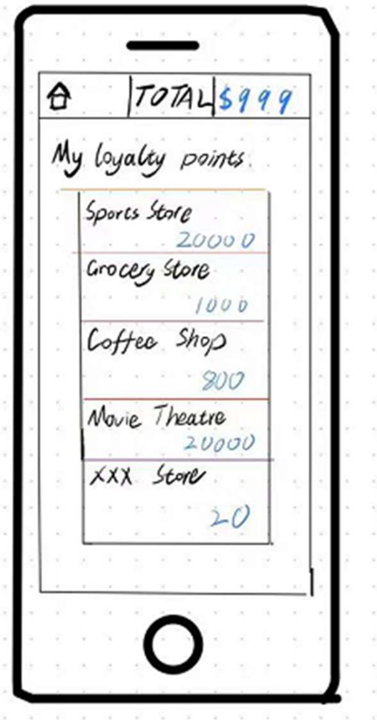

Figure 8. Shuyuan's idea: Loyalty points payment system

This system allows platform to convert loyalty points from different companies into local currency. Points from various businesses owned by users are automatically converted to currency value upon registration. Users can use their phone to pay with the mobile application at stores.

b. Conceptual Design 5: Grace’s Idea

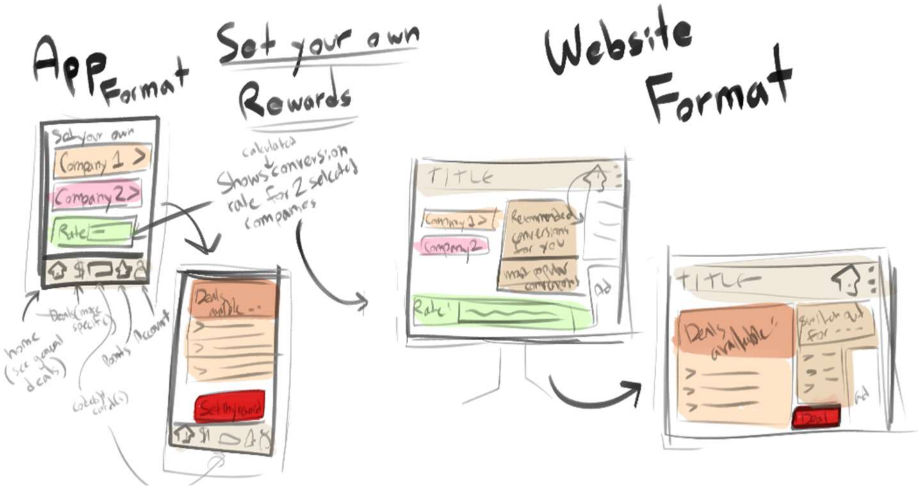

Figure 9. Grace’s Idea: Focused points generation

Customers can interact with the app or website to set their own rewards based on conversions. This way, a customer who might transfer loyalty points from one store to another more frequently than other conversions would be able to receive more personally tailored deals and rewards. The rewards could be centered around getting points for another company based on how many times they convert points from one company to the same company, or they could be dependent on how many times a user visits one store. The number of rewards set by one individual could be limited as to prevent overlap and loss of sales from too much overlap and earnings.