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| SMP |
| SuperPoints  Stage Plan  4 |
| SuperPoints |
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| **John Hoang**  **Oliver Jang**  **Harman Minhas**  **Henry Jiang** |
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## Overview

At this point in time all the requirements requested by our client have been fulfilled. During this last week we will be laying out the foundation for the ability to suggest promotions to businesses based on past data. The focal indecisive point of this idea is whether to base the predictions on visits or on purchases. Depending on which basis is taken, there will be more groundwork in the case of the purchases and no groundwork necessary if it is based on visits. The current system we have implemented has all the tools to create an algorithm based on visits but no work has been done in terms of purchases, as it was not the original vision of our client.  
  
The main selling points of purchase based prediction means much less susceptibility to noise. There will be a direct correlation between a promotions strength and real value to the business, the customer will come in, and use that promotion. This method will require more research and likely more time than has been allotted for 4900. If no further work past 4900 is done, than the idea may never come to fruition.

A visit based algorithm will much better fit the time schedule for 4900. We will have much more time to actually develop the machine learning aspect as there will be no need to research and implement QR codes, it is much more likely in this scenario that something valuable is produced at the end of this period. However the algorithm will require more work in order to discern noise from actual valuable data.

The preliminary design of the algorithm is a system that is based around “tags” that are attached to each promotion. For example if a shop creates a promotion “Sandwiches 5$ off”, the associated tag could be “SANDWICH-5” another promotion tag pairing could be “Coffee 2$” the tag could be “COFFEE=2”. These tags could then be paired to visit frequency. So say a shop creates a promotion tagged “SANDWICH-5”, they then see foot traffic increase by 5%. This would increase this tags weight in determining a new promotion for that shop. This 5% increase could easily be noise if the choice is made to have a visit based algorithm as opposed to purchase. As it stands there is no clear solution on the segregation of valuable data from noise in this approach. A baseline needs to be established for the stores regularity of visits and only spikes should change the algorithm, regular fluctuations such as seasonal changes should be ignored. For these reasons, purchase based learning is more appealing, time is the only issue.

The initial day of the week will be dedicated to fleshing out the benefits of either approach, followed by design the following day and implementation the rest of the period. There will be basic testing performed on this new component but the focus will be on implementation, thus there will likely be no bulk testing of this component as there was with the rest of the application.

## Outcomes

By the end of this period we will have delivered the groundwork for the future of SuperPoints and possibly a market edge against its similar competitors. We will proceed to the fullest extent that time allows but as this is indeterminant, the outcomes of this stage will be indeterminate. All that can be said with certainty is that there will be the beginnings of this idea embedded in the application.

## Dependencies

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| **Dependency** | **Deadline** |
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## Deliverables

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| **Deliverable** | **Description** |
| The idea | Deciding on which approach to take as well as the design whether it is based on tags or something else, this will be documented in a small report. |
| The groundwork | A foundation for the implementation will be created, if the approach is based on purchases, this will be in the form of QR code tracking of purchases, in the case of visits this will be the genesis of the machine algorithm in its basic form. |

## Work Breakdown

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| **Owner** | **Description** | **Completion Date** |
| WEEK 3 | | |
| Harman | Administrator component | 05/11 |
| Oliver | Bluetooth guide, administrator component | 05/11 |
| John | Application guide, UI consistency, administrator component | 05/11 |
| Henry | Database interactions with administrator component, database interaction guide | 05/11 |
| Everyone | Integration and regression testing | 05/11 |
| Oliver | Client minutes | 05/09 |
| Harman | Team minutes | 05/09 |
| John | Estimates and Time Actuals | 05/11 |
| Harman | Weekly Status Report | 05/11 |
| Henry | Risks and Technical Issues | 05/11 |
| Henry | Supervisor minutes | 05/09 |
| Henry | Test Cases | 05/11 |
| John | Stage Plan | 05/11 |