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| SMP |
| SuperPoints  Stage Plan  4 |
| SuperPoints |
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## Overview

The initial days Monday, Tuesday, Wednesday will be dedicated to finishing documentation, UI unification, and testing.

Testing will be broken down into our 3 major components user, business user, and administrator which will be further broken down into unit tests, regression testing and integration testing. There will be a final regression and integration test between the interactions of all of our users. This will also include things universal to all users such as the login activity. The specific test cases will be outlined here and generalized in the test cases document.

LoginActivity:

* Unsuccessful login will cause toast to pop up
* Log in with SQL like username or SQL like password
* Successful login will take the user to the appropriate component

RegistrationActivity:

* Signing up as a business generates a user with a business ID, and a beacon region of null
* Signing up as a normal user generates the appropriate row
* All default fields upon signup make sense.

User:

* Home activity has correct positioning for current location
* Prefer/unprefer businesses work (database agreement)
* Toolbar has correct options, and all lead to new activities successfully
* Dashboard activity has correct promotions for that user, organized by preferred businesses first then others (database agreement)
* Settings activity correctly changes password and push notification slider, relogin and see if the home activity notification is still pinged upon changing
* Points activity correctly displays points accumulated by user (database agreement)
* Profile activity is hidden from user
* Enter a store, points should increase for that store
* Upon point increase a test promotion which was slightly above that users points for the business is shown to the user now
* A notification/toast is sent upon entering the beacons range
* A notification/toast is shown upon leaving with points
* Stay in the store, and see how points accumulate, if it is as expected in accordance with our formula
* Notifications are not sent after changing the slider
* Verify password change results in unsuccessful login with old information

Business:

* Correctly add/delete promotions, with or without images/details or all fields filled
* Edit the above, remove an image, replace it, perform the same test with other fields
* Pie chart displays new vs old users correctly (database agreement),, increase number to large amount, see how graph reacts, include cases with 0 for all data values and mixture of values
* Line chart, displays visits in last 12 months correctly (database agreement), increase number of visits to large amount, see graph reaction, include cases with 0 for all data values and mixture of values
* Bar chart, displays number of users per tier for the business correctly (database agreement), increase number of users in tiers to a large amount, see graph reaction, include cases with 0 for all data values and mixture of values
* Rotation of graphs is locked

Administrator:

* The dashboard searchview functions correctly filtering results, including cases with abnormal characters ‘ , “ , %, etc…
* KPI email is sent automatically, tested by setting automation time close to actual
* Manual KPI email sent on sending button
* Check database businesses vs displayed
* Create new business, see if added to list, check if information matches
* KPI reports correctly return businessID plus the information from the three main statistics for each of these businesses
* Check values against business analytics graph, and against database values generated by the statistics function for that business

Testing will occur in pairs both will run validations on any particular test case to reduce human error, chance occurrence and other events that could corrupt test case results.

During the remaining part of 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 remaining period 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 try to achieve as much as possible, but as that is indeterminant, the outcomes of this stage will be indeterminate. We will have the delivered the application in full, as specified, at the minimum.

## Dependencies

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

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| **Deliverable** | **Description** |
| An “error-free” application as specified per the statement of work | Have an application that runs without almost error less free, there are some things that we will not know until they happen, like testing server load during concurrent usage, and very small things we might overlook during this testing period. |
| The groundwork for a promotion prediction algorithim | 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 algorithm in its basic form. |

## Work Breakdown

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| **Owner** | **Description** | **Completion Date** |
| WEEK 4 | | |
| Harman + Henry | Testing user component, admin business list, details list, analytics | 05/14 |
| John + Oliver | Business signup/ User signup, business promotions, emails, KPI report | 05/14 |
| John | Finish UI unification | 05/12 |
| Henry | Finish database guide | 05/12 |
| Oliver | Finish kontakt beacon documentation | 05/12 |
| Harman | Finish application guide | 05/12 |
| Everyone | Present ideas on approach to how to predict good promotions to create | 05/15 |
| Everyone | QR code implementation or visit based algorithm noise problem | N/A |
| Everyone | AI implementation | N/A |
| Oliver | Client minutes | 05/16 |
| Harman | Team minutes | 05/16 |
| John | Estimates and Time Actuals | 05/18 |
| Harman | Weekly Status Report | 05/18 |
| Henry | Risks and Technical Issues | 05/18 |
| Henry | Supervisor minutes | 05/16 |
| Henry | Test Cases | 05/18 |