**Report 1: Understanding of client’s requirements**

Team member contribution

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| **Team member** | **Contribution** |
| Josh Blythe | * Programmed the create account page * Programmed the login page * Programmed the website navigation bars * Programmed the settings page   + Implemented the invite member of staff link within this page. * Programmed the manage employees page * Programmed the to-do list for employees and team leader |
| Damian Barczak | * Initial thoughts and requirements write up * Programmed the page for viewing an individual team as a manager * Programmed the team leader dashboard page * Compiled follow-up questions and answers together |
| Harvey Strand | * Listing detailed and specific requirements * Created and wrote the report R1 * Programmed the individual post page * Created the replies feature for posts |
| Freddie Bailey | * Programmed the view posts page * Programmed the view topics page * Made 4 colour schemes. * Asked initial questions and complied the answers together |
| James Lamont | * Programmed the create new post page * Programmed the website footer * Programmed the assign tasks page * Programmed the create project page |
| Thomas L’Estrange | * Programmed the manager’s dashboard * Programmed the create topic page * Programmed the employee dashboard. * Compiled all the different pages together |

*Note: Features and additions listed are based on the current prototype, which are designed to be presentational and may not be fully functional.*

**System overview**

We are making a productivity and knowledge management system which helps managers track teams and employees track their tasks, additionally with sharing information amongst each other. Managers will get to see how all teams are progressing with their projects and see each individual employee’s tasks. Team leaders can see how their team is progressing and see how employees are progressing with their tasks. Each employee can see and manage their own tasks.

All users on the system can create and reply to posts to share technical and non-technical knowledge and ask questions relating to their projects.

**Listing client requirements**

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| **Number** | **Requirement** | **Justification of requirement** |
| 1. *Login and inviting users* |  |  |
| 1.1 | A user must be registered to access the system. | Specification letter: **“A member of staff must register to gain access to the system.”** |
| 1.2 | Every user must be able to invite users to the system using a link. | Specification letter: **“There must of an option for an existing member to invite another member of staff to join the system.”**  Question to Client Admin Operation Manager: *Is it only admins or managers that can invite new employees to the system?*  **“Every employee can do this.”**  Question to Client Project Managers: *Is it okay for the admins to add emails to a green list which can register someone to invite them to the system, and then this enables the new user to create an account (and password) with said email? Any attempts to register with a non-verified email is blocked. The emails can have a timestamp so that invites expire.*  **“What we want is that employees are invited to the system by another employee, they can open the registration link and** then use their company email along with their information, such as first name and surname **to register on the system.”** |
| 1.3 | A verified staff email address is required to register to the system. | Specification letter: **“And no external personnel should be allowed to register and create an account on the system.” “Their usernames can only be their staff email addresses”**  Question to Client Project Managers: *Is it okay for the admins to add emails to a green list which can register someone to invite them to the system, and then this enables the new user to create an account (and password) with said email? Any attempts to register with a non-verified email is blocked. The emails can have a timestamp so that invites expire.*  “What we want is that employees are invited to the system by another employee, they can open the registration link and **then use their company email** along with their information, such as first name and surname **to register on the system.**” |
| 1.4 | First name and surname are required from the user to register to the system. | Question to Client Project Managers: *Is it okay for the admins to add emails to a green list which can register someone to invite them to the system, and then this enables the new user to create an account (and password) with said email? Any attempts to register with a non-verified email is blocked. The emails can have a timestamp so that invites expire.*  “What we want is that employees are invited to the system by another employee, they can open the registration link and then use their company email along with their information, **such as first name and surname to register on the system.**” |
| 1.5 | A password must contain at least 8 characters, including an uppercase character, a lowercase character, a number, and a special character. | Specification letter: “Their usernames can only be their staff email addresses and **their accounts must be protected by strong passwords.**”  Question to Client Technical Specialists: *Would you classify this as a strong password (one upper, one lower, one special, one number, minimum 8 characters)?*  **“Regarding password requirements, please adhere to industry standards.”** |
| 1.6 | A password must not contain any of the user’s credentials, such as first name or surname. | Specification letter: **“We would like suitable aspects of data protection considered so the system cannot be exploited to target specific individual.”** |
| 1.7 | A maximum of one account per member of staff. | Specification letter: **“To improve manageability, no member of staff should be allowed to have more than one account on the system.”** |
| 1.8 | Managers should be able to add new managers to the system. | Question to the Client Admin Operations Manager: *Can the single admin account create other admin accounts?*  **"For now, we don't need an admin account, just to be able to assign the admin role to managers, and team leaders so that they can do different things with the system."** |
| 1. *Managing teams* |  |  |
| 2.1 | Managers must be able to start a new project and assign a team leader. | Question to Client Admin Operations Manager: *Which permission level of users (admin or manager or other) should access how well project tasks are allocated and progressing?*  **"The way it works in our company is that a manager creates a project, assigns a team leader, and then the manager or the team leader, create tasks.”** |
| 2.2 | Managers and team leaders must be able to create tasks for employees. | Question to Client Admin Operations Manager: *Which permission level of users (admin or manager or other) should access how well project tasks are allocated and progressing?*  **“The way it works in our company is that a manager creates a project, assigns a team leader, and then the manager or the team leader, create tasks.”** |
| 2.3 | Assigning a task to an employee should assign the employee to the respective team. | Question to Client Admin Operations Manager: *Can a member of staff be a part of multiple teams at the same time? If yes, this would mean that a member of staff can have tasks set from at least two different teams concurrently.*  **“…then the manager or team leader can create tasks and assign employees to those tasks, once an employee is assigned to a task they become a part of that team,”** |
| 2.4 | If an employee no longer has tasks related to a team, they should be removed from the team. | Question to Client Admin Operations Manager: *Can a member of staff be a part of multiple teams at the same time? If yes, this would mean that a member of staff can have tasks set from at least two different teams concurrently.*  **“…once an employee is assigned to a task they become a part of that team, if they no longer have active tasks on a project then they are not part of the team.”** |
| 2.5 | Managers and team leaders should be able to view team members and tasks allocated to the team they are responsible for. | Specification letter: **“There should also be a manager’s dashboard so that the managers or team leaders can keep track of the progression of the project they are responsible for.” “The new system should be able to show how many tasks a team member is currently working on”**  Question to Client Admin Operations Manager: *Which permission level of users (admin or manager or other) should access how well project tasks are allocated and progressing?*  **“Managers can do everything. Team leaders can only control aspects of their own project, they can't assign other team leaders, and they have no permissions outside the scope of their project.”** |
| 2.6 | Managers can view and access all teams. | Question to Client Project Managers: *Which permission level of users (admin or manager or other) should access how well project tasks are allocated and progressing?*  "**All the managers** and a given team leader." |
| 2.7 | There should be a visual way for managers and team leaders to compare how tasks are allocated amongst team members. | Specification letter: “**This system will need to enable us to see how well the tasks are allocated,”** |
| 2.8 | A progress bar should be shown for each team which states how many tasks have been completed. | Specification letter: **“This system will need to enable us to see** how well the tasks are allocated, **how well the projects are progressing overall,”** |
| 2.9 | There should be a list of employees which state how many tasks each employee has been assigned. | Specification letter: “**This system will need to enable us to see how well the tasks are allocated,** how well the projects are progressing overall, **whether the projects are sufficiently resourced to solve problems in an acceptable time,**”  Question to Client Project Managers: *By sufficiently resourced, do you refer to how many employees are assigned to each task and does this mean each task should be allocated to an employee?* **“Yes, we want to allocate all the current tasks to the employees.”** |
| 2.10 | Employees should be able to receive tasks from, and be part of, multiple teams at a time. | Question to the Client Admin Operations Manager: *Can a member of staff be a part of multiple teams at the same time? If yes, this would mean that a member of staff can have tasks set from at least two different teams concurrently.*  **“Typically, each employee works on one project at any given time. However, there might be instances where they get assigned to more than one project.”** |
| 2.11 | Team leaders can manage more than one team at a time. | Question to the Client Project Managers: *Do team leaders oversee multiple projects at one time?*  **"Normally an employee is a team leader for only one project at a time, but we don't see a need for any limitation because that scenario might occur in the future."** |
| 2.12 | Team leaders can be set tasks. | Question to the Client Project Managers: *Do team leaders have their own tasks in their own projects?*  **"We aim to minimize situations where a team leader is also a team member in the same or another team, although we cannot entirely rule out the possibility of this occurring."** |
| 1. *Employees and tasks* |  |  |
| 3.1 | Tasks should have a set time constraint. | Question to the Client Project Managers: *Do tasks have time constraints?*  **“Usually yes.”** |
| 3.2 | Employees should be able to see their tasks in a list form. | Specification letter: **“The new system should have a To‐do list in which our employees will be able to create a list of To‐do items.”** |
| 3.3 | Employees should have a to-do list that they can add to. | Specification letter: **“The new system should have a To‐do list in which our employees will be able to create a list of To‐do items.”** |
| 1. *Documenting knowledge* |  |  |
| 4.1 | All users can create a topic. | Specification letter: **“Users will be allowed to create “Topics” for specific subject areas. Example topics include “Software Development”, “Software Issues”, and “Printing”, etc.”** |
| 4.2 | For each topic, users can create posts within the topic to share knowledge. | Specification letter: **“For each topic, the users will need to be able to create and share “Posts” relevant to the chosen topic”** |
| 4.3 | Posts can contain text and pictures to share knowledge. | Question to the Client Project Managers: *What requirements are there for posts (text, picture)?*  **"It really depends on a specific topic/post, so this should be flexible."** |
| 4.4 | Every user can see the posts shared in the topics. | Specification letter: **“Documenting knowledge and sharing it with the wider community in the company”**  **“Users will be allowed to create “Topics” for specific subject areas. Example topics include “Software Development”, “Software Issues”, and “Printing”, etc. For each topic, the users will need to be able to create and share “Posts” relevant to the chosen topic”** |
| 4.5 | Users should be able to reply to posts shared in topics. | Specification letter: **“For the same reason we also urgently need the knowledge management sub‐system to assist with documenting knowledge and sharing it with the wider community in the company.”** |
| 1. *Aesthetics and functionality* |  |  |
| 5.1 | The website should use light themes for the aesthetics of the website. | Question to the Client Admin Operations Manager:  *Do you have a colour pallet that you would like us to use to match your companies’ image?*  "We were hoping that you would provide us with different samples for colour themes and designs, **matching the logo**, but **we definitely prefer lighter themes."** |
| 5.2 | JavaScript and PHP should be used to create the website and MYSQL should be used to interact with the database. | Specification letter: **“To assist in the maintenance of the systems, we request you produce this using JavaScript and/or PHP programming languages with the MySQL database.”** |

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| Number | Requirement | How has the requirement been met? |
| 1. *Login and inviting users* |  |  |
| 1.1 | A user must be registered to access the system. | A user must first log in before they can access system. Logging in requires the user to be registered. |
| 1.2 | Every user must be able to invite users to the system. | Any user can generate an invite link from within their settings page, which generates a unique 16-digit code. When a new user has accessed the link, the code is inserted to verify their invite. Each employee can also regenerate their link for increased security. |
| 1.3 | A verified staff email address is required to register to the system. | On the create account page, the user will have to enter their email address. The MySQL database will verify if the email is on the system. |
| 1.4 | First name and surname are required from the user to register to the system. | The create account page will require the employee to enter their first name and surname before submitting. This will be checked on client side and server side. |
| 1.5 | A password must contain at least 8 characters, including an uppercase character, a lowercase character, a number, and a special character. | The create account page will prompt the user to ensure the password is sufficient. Validation checks on the client side and server side will be used to ensure that the user has followed the rules before creating the account. |
| 1.6 | A password must not contain any of the user’s credentials, such as first name or surname. | Once the user has entered their first and surname on the create account page, the submitted password will be checked to see if contains their name. If the password contains either the first name or the surname, the web page will ask the user to enter another password via an error message stating “password cannot contain first name or surname”. |
| 1.7 | A maximum of one account per member of staff. | When a user attempts to create an account, the email will be checked on the MySQL database to see if the email is already registered to an account. |
| 1.8 | Managers should be able to add new managers to the system. | On the manage employees web page, a manager will be able to select users from a list and assign them to be a manager using a dropdown. |
| 1. *Managing teams* |  |  |
| 2.1 | Managers must be able to start a new project and assign a team leader. | There will be a create project page which will allow a manager to create a new project. Creating a new project will involve assigning a team leader and assigning employees tasks. |
| 2.2 | Managers and team leaders must be able to create tasks for employees. | Managers and team leaders can create tasks using the create task page when a project has been created. Managers can also create tasks for employees when creating the project by assigning initial tasks. Additionally, when viewing a team, there is an ‘add task’ button for each member, allowing an easy way to assign tasks quickly. |
| 2.3 | Assigning a task to an employee should assign the employee to the respective team. | When a team leader or manager assigns a task to an employee using the create task page, they become part of the team linked to the task. |
| 2.4 | If an employee no longer has tasks related to a team, they should be removed from the team. | Once an employee has finished their last task in a team, they will be removed from the team. This will be shown on the team leaders’ dashboard when they select that specific team. |
| 2.5 | Managers and team leaders should be able to view team members and tasks allocated to the team they are responsible for. | Managers see all teams on their dashboard, and selecting a team will show team members and tasks allocated to them. A team leader will show the team they lead on their dashboard, and if they lead multiple teams, they can switch between them. |
| 2.6 | Managers can view and access all teams. | Managers see all teams on their dashboard. Selecting a team will show team members and tasks allocated. |
| 2.7 | There should be a visual way for managers and team leaders to compare how tasks are allocated amongst team members. | When viewing a team, each employee’s tasks are listed horizontally, which allows a team leader or manager to compare the number of tasks vertically. |
| 2.8 | A progress bar should be shown for each team which states how many tasks have been completed. | When viewing a team, a progress bar will be displayed in the top right, showing how many tasks have been completed. |
| 2.9 | There should be a list of employees which state how many tasks each employee has been assigned. | On the manage employees page, each employee will have their number of tasks assigned next to their name. |
| 2.10 | Employees should be able to receive tasks from, and be part of, multiple teams at a time. | When an employee is assigned a task from a team, they are then part of that team. If the same employee gets assigned another task from a different team, the employee will be part of both teams. Both tasks will be visible on their dashboard. |
| 2.11 | Team leaders can manage more than one team at a time. | If a manager has assigned an employee to be a team leader in multiple projects, then they will be able to manage more than one team. |
| 2.12 | Team leaders can be set tasks. | A manager can assign a task to a team leader by selecting them when creating a task. |
| 1. *Employees and tasks* |  |  |
| 3.1 | Tasks should have a set time constraint. | When creating a task, it will be mandatory to set a deadline for each task. |
| 3.2 | Employees should be able to see their tasks in a list form. | The employee dashboard will show the tasks the employee has yet to complete. |
| 3.3 | Employees should have a to-do list that they can add to. | The employee’s dashboard has a to-do list at the bottom of the page, where they can add their own tasks. |
| 1. *Documenting knowledge* |  |  |
| 4.1 | All users can create a topic. | The user will be able to create a topic on the create topic page when they are on the viewing all the topics. |
| 4.2 | For each topic, users can create posts within the topic to share knowledge. | Once a topic has been selected, you can create a post using a button. This will take the user to the create posts page, where they can make a post for the topic. |
| 4.3 | Posts can contain text and pictures to share knowledge. | When a user decides to create a post, the system will give the option to add an image. A post is required to contain some text. |
| 4.4 | Every user can see the posts shared in the topics. | Once a user a selected a topic, all the corresponding posts of that topic will be shown as rows in a list. |
| 4.5 | Users should be able to reply to posts shared in topics. | An entry box at the bottom of an individual post will allow a user to respond using a text message. |
| 1. *Aesthetics and functionality of the website* |  |  |
| 5.1 | The website should use light themes for the aesthetics of the website. | The webpages consist of mostly white, light greys and light colours to maintain the light theme. |
| 5.2 | JavaScript and PHP should be used to create the website and MYSQL should be used to interact with the database. | JavaScript will be used for the client-side scripting, and PHP will be used for the server-side scripting, for example, password checking. |

**List of questions we have asked**

1) Client Admin Operations Manager: Alice

Is it only admins or managers that can invite new employees to the system?

-"Every employee can do this."

Can any user create a topic?

-"We don't know how to best implement this, so we are open to suggestions."

How many employees does your company have, admins, managers and others?

-"These numbers are flexible, please do not hardcode anything."

Can the single admin account create other admin accounts?

-"For now, we don't need an admin account, just to be able to assign the admin role to managers, and team leaders so that they can do different things with the system."

Do you have a colour pallet that you would like us to use to match your companies’ image? Show examples from www.colorhunt.co.

-"We were hoping that you would provide us with different samples for colour themes and designs, matching the logo, but we definitely prefer lighter themes."

Which permission level of users (admin, manager or other) should access how well project tasks are allocated and progressing?

-"The way it works in our company is that a manager creates a project, assigns a team leader, and then the manager or the team leader, create tasks.

These tasks get then allocated to employees and once an employee is allocated a task in a project, they are part of the team, if they no longer have active tasks on the project, they are not part of the team.

Managers can do everything. Team leaders can only control aspects of their own project, they can't assign other team leaders, and they have no permissions outside the scope of their project.

For now, we don't need an admin account, just to be able to assign the admin role to managers, and team leaders so that they can do different things with the system."

Can a member of staff be a part of multiple teams at the same time? If yes, this would mean that a member of staff can have tasks set from at least two different teams concurrently.

-The way it works in our company is that a manager creates a project, and assigns the project a team leader, then the manager or team leader can create tasks and assign employees to those tasks, once an employee is assigned to a task they become a part of that team, if they no longer have active tasks on a project then they are not part of the team.

Typically, each employee works on one project at any given time. However, there might be instances where they get assigned to more than one project.

2) Client Project Manager: Dilip and Emma

Can a post be assigned to multiple topics?

-"We are open to suggestions how to best design this."

What requirements are there for posts (text, picture)?

-"It really depends on a specific topic/post, so this should be flexible."

Can other people reply or add to others posts (upvoting etc)?

-"We are open to suggestions how to best design this."

Is it okay for the admins to add emails to a green list which can register someone to invite them to the system, and then this enables the new user to create an account (and password) with said email? Any attempts to register with a non-verified email is blocked. The emails can have a timestamp so that invites expire.

-"What we want is that employees are invited to the system by another employee, they can open the registration link and then use their company email along with their information, such as first name and surname to register on the system. Since you are the experts in this matter, we will follow your lead on how to implement this."

Do employees set themselves tasks and can managers set tasks to other employees?

-"I think this question was already answered before by my colleague Alice."

Do tasks have time constraints?

-"Usually yes."

Should the managers dashboard show the extent of individuals tasks, or simply the quantity of tasks set to each user?

-"We are open to suggestions how to best implement this."

Do you have a colour pallet that you would like us to use to match your company’s image. Could you please show examples from www.colorhunt.co?

-"We were hoping that you would provide us with different samples for colour themes and designs, but we definitely prefer lighter themes."

Which permission level of users (admin, manager or other) should access how well project tasks are allocated and progressing?

-"All the managers and a given team leader."

How would we have data on if projects are sufficiently resourced?

-"Please incorporate some placeholder numbers into the prototype."

Describe how to measure how well a project is allocated?

-"I'm sorry, I don't understand the question."

By sufficiently resourced do you refer to how many employees are assigned to each task, and does this mean each task should be allocated to an employee?

-"We mainly focus on team size and man hours needed to complete the task/project. Yes, we want to allocate all the current tasks to the employees."

Who decides whether training is needed to complete the task?

-"This will be handled directly by managers or team leaders outside of the system."

As per request, we have found some light palettes we think would be suitable to the development.

Which of the following do you prefer?

Palette One: https://colorhunt.co/palette/27374d526d829db2bfdde6ed

Palette Two: https://colorhunt.co/palette/32364360647093defff7f7f7

Palette Three: https://colorhunt.co/palette/f6f6f6d6e4f01e56a0163172

Palette Four: https://colorhunt.co/palette/f7fbfcd6e6f2b9d7ea769fcd

-"It'd be good if you show us these options during the prototype presentation we have soon."

Are you happy with the attached logins screen design?

FYI: The final product will only have one checkbox which will be used to remember login details. For now, this can be used so that you can access both the managerial and employee versions of the prototype system. Thanks. \*picture\*

-"Again, it'd be good if you show us this design during the prototype presentation we have soon."

Do team leaders oversee multiple projects at one time?

-"Normally an employee is a team leader for only one project at a time, but we don't see a need for any limitation because that scenario might occur in the future."

Do team leaders have their own tasks in their own projects?

"We aim to minimize situations where a team leader is also a team member in the same or another team, although we cannot entirely rule out the possibility of this occurring."

3) Client Technical Specialists: Bert and Clara

Would you classify this as a strong password (one upper, one lower, one special, one number, minimum 8 characters)?

-"Regarding password requirements, please adhere to industry standards."

What standards need to be in place to provide sufficient individual account security (so that no individual can be exploited)? Some examples could be (preventing common passwords, no same username as password, providing password advice before creation).

-"Please adhere to industry standards. All communications and data storage must be secure and not vulnerable to any kind of attacks. You are the experts in this matter, so we are happy to follow your suggestions. "

Do you refer to any resources other than humans. E.g.: software?

-"I'm sorry, I don't understand the question."

Are you okay with us using bootstrap for development. On a managers board the dashboard shows albums of users in which you they click a user it displays individual detail?

-No response

4) Our company technical advisors: Terry and Dave

Are you okay with us using bootstrap for development. On a managers board the dashboard shows albums of users in which you they click a user it displays individual detail?

-"There is no issue with your team using Bootstrap in the development of the system., so feel free to use this if you want to."

5) Our company’s senior manager: Mr Neumann

I have attempted to contact the project manager for our client to discuss colour palette and if our current login spec is sufficient yet received no response. Who is best for our team to contact in your opinion?

-No response