

Product Requirements Document

Revision Date: 01/03/2020

Product Requirements Document

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# Objective

Vision

We want health, happiness, and smarts for children around the world.

Project Overview

Chef Koochooloo is an educational organization based in Silicon Valley that teaches students in grades K-5 core academics, international culture, and healthy eating through the process of cooking. We aim to make the educational experience more engaging and fun by using cooking. We are the only educational cooking web-app in the market that teaches STEM and Common Core and are looking to incorporate ELD and NGSS.

Chef Koochooloo is looking to rebuild its educational gaming web application adding new features that were requested by teachers during the pilot sessions. Currently, our web application is lacking gamification and some elements need to be redesigned.

Goals

* Rebuild the current web application with a teacher/parent dashboard and using gamification in the student portal
  + The current MVP is built-in Haxe (OpenFL framework) and Ruby on Rails

[https://app.chefkoochooloo.com](https://app.chefkoochooloo.com/)

*Logins for teacher IDs:*

*Kindergarten: “ACCESSK” (for kinder students)*

*1st Grade: “ACCESS1” (for 1st graders)*

*2nd Grade: “ACCESS2” (for 2nd graders)*

*Teachers IDs must be typed into the bar, not copy-pasted*

*Click any student number and proceed*

* Research implementations of AI in our lesson flow
* Move the content to new CMS for more efficient user experience
  + *Current ways to access CMS*
    - Ruby on Rails (Written content/recipes) for Android and Web App  
      [CMS Link](https://portal.chefkoochooloo.com/users/sign_in)  
      Username: [oroinigo@gmail.com](mailto:oroinigo@gmail.com)  
      PW: WelcomeOro
    - 1stPlaybook (pre/post assessment and questions) for Webapp assessments QA, links to AWS for artwork and voice over  
      <https://demos.1stplayable.com/?usr=21>  
      Username: ChefKoochooloo  
      PW: Phash2phoht4ai   
      This was a separate assessment we created to test student learning outcomes during Phase 1. For the new version of the app we would need the assessments to be included in our product, (so during the game students answer questions and their answers are captured in the new app, instead of on a separate platform).

# Feature

## CMS

Problem

We use 3 different CMS to manage all our content which is very confusing and not efficient. It also takes a long time for the current MVP to load content.

Purpose

1. Easily manage (edit, add and delete) all app-level content in one place
2. Ability to manage complex data structures such as audio files, images
3. Allow collaboration on content - Multiple users must be able to change the content simultaneously
4. Content processing (e.g. text-based search) is necessary for standard data discovery functions

Below are mentioned the entities which constitute the Admin CMS

### Quiz Question Question is an essential module that drives the learning objective of a student and is used to measure performance.

* 1. Is associated with a learning objective (*type: text)* Learning objectives are the global or national learning standards that are covered in this question (for example Common Core, ELD, NGSS, etc.). This allows teachers to find recipes that cover the topics that they want to teach. Learning objectives clarify what to focus on during the lesson for both student and teacher, improving lesson effectiveness.
  2. Is associated with a grade level (K, 1, 2, 3, 4 or 5)
  3. Can have an image
  4. Can be multiple choice or take textual input
  5. On correctly answering the question, 2 coins are awarded
  6. Attached to Country, Ingredients, culinary techniques, science fact etc.

### Country The country module is used to teach students about countries and their cultures and promote global competency. Filter By: name

* 1. name   
     Name of the country  
     *type: text*
  2. population  
     *type: number*
  3. capital  
     *type: text*
  4. catchphrase   
     A salutation to a person about to eat in the country’s language  
     *type:text -> type:audio*
  5. welcome message  
     One or two-word greeting commonly used in the country  
     *type:text -> type:audio*
  6. fun facts:  
     List of facts associated with a country.  
     *type: text -> type: collection*
  7. short descriptionA description of the country.   
     *type: text*
  8. foreign character:  
     A character who introduces the recipe and acts as the face of this country for the students
     1. image  
        *type:image*
     2. character name  
        eg: Diederik, Dory etc  
        *type:text*
     3. parent character name  
        eg: Father, Mother, Mama etc.  
        *type:text*
     4. parent\_image  
        *type:image*
  9. flag  
     *type:image*
  10. country image  
      List of images associated with a given country   
      *type:image -> type:collection*
  11. quiz question   
      List of questions associated with a given country  
      *type:Quiz Question -> type:collection*
  12. short videoA short video depicting the country  
      *type: video*
  13. language  
      Name of the language used in the country  
      eg: English in the USA, Spanish in Spain  
      *type: text*
  14. stamp-for-passportIn the passport page of the student view, stamps will depict which countries the student has completed recipes from.  
      A star with an incrementing number will be displayed beside the stamp if multiple recipes from the country have been completed.  
      eg (Country stamp \* no of recipes student has completed from this country)  
      t*ype: image*

### Measurement Size

* 1. standard metrics  
     eg: kg, oz, liter, Pound, qty, cups, quarts, tsps, tbsps  
     *type:text*

### Ingredients Filter By: name

* 1. name  
     *type:text*
  2. image  
     *type:image*
  3. general ingredient question  
     *type:* Quiz Question *-> type:collection*
  4. nutrient spotlight  
     explanation of top nutrient in ingredient to display to students  
     *type: text  
     type: Quiz Question*
  5. spotlight text  
     Information about ingredient sustainability and history  
     *type: text* (optional)  
     *type: Quiz Question*
  6. spotlight video  
     *type:video*(optional)
  7. link to the product for easy ordering  
     *type: text*

### Tools or Cookware Filter By: name

* 1. name  
     *type:text*
  2. Image  
     *type:image*
  3. description  
     *type:text*

### Culinary Techniques Common recipe steps such as boiling water or chopping an onion that might require a demonstration video or that provide an opportunity to teach a science concept. Filter By: name

* 1. name  
     *type:text*
  2. video   
     *type:video(optional)*
  3. instructions  
     *type:text*
  4. science fact  
     *type:text*
  5. factual\_question  
     A question associated with given technique  
     *type:Quiz Question -> type:collection*

### Meal Type eg Breakfast, Dinner

* 1. name  
     *type:text*

### Dietary Preference eg Vegan, gluten free

* 1. name  
     *type:text*

### Recipes Filter By: Country, Meal Types, Dietary Preferences, Tools, Name, Difficulty Level, Ingredients, Culinary Technique

* 1. name  
     *type: text*
  2. name\_country\_specific  
     Name of the recipe as it is called in its country of origin  
     *type: text*
  3. description  
     *type:text*
  4. country *type:Country*
  5. image  
     *type: image -> type:collection*
  6. video  
     *type:video*
  7. ingredients  
     List of ingredients which recipe consists of  
     *type:Ingredient -> type:collection*
     1. name  
        *type:Ingredients*
     2. measurement metric  
        *type: Measurement Size*
     3. measurement value  
        *type:number*
  8. dietary preferences  
     *type: Dietary Preference -> type:collection*
  9. meal types  
     *type:Meal Type -> type:collection*
  10. recipe stepSteps/Procedure that would need to prepare a recipe  
      *type: collection*
      1. instruction   
         *type: text*  
         OR  
         *type: Culinary Techniques*
      2. adult assistance required  
         If a given step is safe for children to do alone it will be labeled “little chefs”. Otherwise, it will be prefaced with “big chef”.  
         *type:bool*
  11. difficulty level  
      On a scale of 5, a higher number represents greater difficulty  
      *type: number*
  12. serving timeApproximate time needed to prepare the recipe  
      *type: number*
  13. serving sizeNumber of people one recipe can serve  
      *type: number*

### Avatars Enable students to redeem the coins they have earned by purchasing avatars and accessories which will be displayed in their passport.

### name *type: text*

* 1. image  
     *type: image*
  2. price  
     Number of coins needed to purchase the given avatar  
     *type: number*

### Badges Enable students to level up and encourage them to complete more recipes by awarding badges.

* 1. image  
     *type: image*
  2. Generic Badges  
     Badges that are awarded after completing certain no of recipe
     1. name (e.g., Chef, Food Scientist etc.)  
        *type:text*
     2. number of recipes completed  
        *type:number*
  3. Country Specific Badge  
     For completing all recipes from the country
     1. name  
        *type:text*

### Languages Language localization. Language can be changed in respective user profile.

### All the contents that would be added to the CMS would have a corresponding translation field where the admin could easily enter translated data

* 1. Beginning with English and Spanish and more languages to be added at a later stage
  2. Easy to add new languages since the *app will be using languages like Chinese and Japanese* in the near future

### Audio A mechanism to have voiceover for all of the text. We can use services like AWS Poly. Admin would not be uploading audio samples for now so the system should be independent.

* 1. Most of the textual content will be associated with audio to be played when the text appears in the student user flow
  2. Add an easy way to identify audio that is missing or not working

### School A place to create accounts for school/school administrators and view address, number of students in the program, join date, contact info, etc. of existing schools.

* 1. email (invites a school principal to create an account)

Refer to mockup for further reference: [ChefKCMSMockup.pdf](https://drive.google.com/file/d/1KYLEIg6Wke0aIs8pEo2r93Fqn5oYuCbP/view)

## Principal Dashboard The dashboard will be used to manage teachers and their associated classes.

### School Manage school profile

* 1. name
  2. contact number
  3. address
  4. emergency contact number
  5. school subscription (Basic or Advanced plan)
  6. reports  
     Reports which can be beneficial for a school principal. Need agency input on which metrics to use and how to represent them clearly to the user.
  7. General invite code for teachers (will be approved by principal on signup) Need Mockup

### User The principal can create users of roles staff, teacher, parent and student.

* 1. name
  2. email/username (will be used for login)
  3. any other profile information for this user
  4. school  
     *type: School*
  5. role  
     Types of users that can be created
     1. Staff
        1. Can manage their associated school
        2. This user can be logged into Principal Dashboard
     2. Teacher
        1. Can be assigned to a class and has the ability to create classes and lessons
     3. Student
        1. Belongs to one class and is assigned lessons by the teacher of that class
     4. Parent
        1. The system will recognize parents of multiple students by the duplicate username or email
        2. student  
           *type:User.role.Student -> type:collection*
  6. List
     1. Can invite using generated invite code or email address (will be approved by principal on signup if using invite code, will join by link if using email)
     2. Still we need to have authorization at this place?? only with the generated code. with email they will just join with a link

### Classes

* 1. name  
     *type:text*
  2. grade  
     (K, 1, 2, 3, 4, and 5)
  3. teacher  
     *type:User.role.Teacher*
  4. studentPrincipal can upload excel/CSV with student information or manually edit students.  
     *type:User.role.Student -> type:collection*
  5. reports:
     1. Should show performance metrics to provide insights about a class. Need agency input on which metrics to use and how to represent them clearly to the user.

### Message One to one messaging system for parents and teachers with the school principal. (not realtime)

* 1. parents Find parents of students in a given class in class info  
     *type: User.role.Parent*
  2. teacher  
     *type: User.role.Teacher*

### Calendar Show lessons, which class they will be taught to and by which teacher in a visual calendar representation.

There are no mockups for this functionality

## Teacher Dashboard A place for teachers to manage their classes, create lessons and view student and class reports.

### Signup

* 1. Enter invite code if teacher has received one from school principal.
  2. Create Account
     1. Name
     2. username/email  
        To be used as login
  3. Choose a plan (unless teacher belongs to a school)

### Profile/Settings

* 1. Edit account information (name, username/email, password)
  2. School
     1. Add invite code from school
     2. School information
  3. Manage subscription (unless teacher belongs to a school)

### Manage classes <Describe Something>

* 1. Upload excel/CSV with student information or manually edit students.
  2. Reports:  
     Display statistics about class student achievements to show teachers the effectiveness of the lesson. Need agency input on which metrics to use and how to represent them clearly to the user.
     1. Achievement score distributions, Curriculum progression, and scores.
     2. The report can be downloaded in pdf format or CSV format per class or per-student basis.
     3. View students’ answers to feedback questions
     4. Filter by date

### New Lesson <Describe Something>

* 1. Create new lesson:
     1. class  
        *type:Classes*
        1. Select all students in case of whole class  
            Or  
           Select individual(s)  
           *type: User.role.Student*
     2. date  
        Date when the lesson will take place
     3. start-time and end-time  
        *type: time*
     4. country  
        *type:Country*
     5. recipe  
        Filtered by selected country with option to filter by dietary preferences and learning objectives.On the screen where the recipe is previewed, there should be a print button for cases when there is no digital environment available.  
        *type:Recipe*
     6. Cooking can be done in groups of five. The teacher can choose to group students manually or randomly in the grouping module (has not yet been added to mockup). In the case of grouping, one student from each group will have a device from which to dictate the recipe steps and answer the questions from the cooking portion of the lesson. These questions will be completed by the other four students in the group as homework.
  2. Customize lesson modules  
     Here the teacher can preview the lesson that has been created and modify the preselected questions ,games and add feedback question
     1. global competency  
        Preview screens from student flow related to the country which the recipe is part of with the ability to change the default questions to other options from the database
     2. selection of game (e.g., tool selection game or nutrient to ingredient matching game). Game data is generated according to the recipe that is selected.  
        *Agency must ensure that the games are engaging and appealing to children*
     3. ingredients module *Under Consideration*
        1. select question from ingredient question list filtered by specified class’s grade level
        2. select nutrient spotlight
        3. select ingredient spotlight
     4. cooking module
        1. select science fact and question
        2. preview culinary techniques covered
     5. create feedback question(optional)  
        This is asked at the end of a lesson for getting student feedback about the lesson. Question as well as student answers should be captured.
     6. Cooking Kit *Under Consideration*  
        A food deliverer, for example, AmazonFresh that can deliver the ingredients to the classroom. The teacher can make an order for (ingredient quantities / serving size \* number of students in the class) and this order arrives at the agreed time.  
        This is a feature that could make our product a lot more effective, although the product works currently without it.

### Student See information about student which are associated to the teacher

* 1. reports:   
     View assigned lessons, how many *tries it takes for the student to answer questions* correctly as well as answers to feedback questions etc. Need agency input on which metrics to use and how to represent them clearly to the user.
     1. The student’s achievements organized by learning standard to show what they are good at and where they need improvement.
     2. Can only view lessons that were assigned by a teacher from the same school.
  2. Messaging with parents
  3. List: Filter by Grade and Class

### Lessons Index

* 1. Filter by Grade, Country, etc
  2. Lesson feedback provided by student after completion of the lesson
  3. Note section for teachers to reflect, fill out how the class went, record anything students said that showed progress/understanding. It should be downloadable in PDF format.

### Order status *Under Consideration*

### Messaging Simple chat interface for messaging with principals and parents.

* 1. with principal
  2. with parents

For further reference see [Teacher's Dashboard.xd](https://drive.google.com/open?id=1f0hn4-ZkVa9HRzz0RACLKSqALilCugQ1)

## Parents Dashboard

1. Profile Edit section(own account)
2. Dropdown for parents of multiple children
   1. Student information
   2. Messaging with teacher and principal
   3. Report: They are able to see the student achievements.
   4. View child’s assignments
   5. View recipes child has done
   6. List/View all recipes (filter by country, etc)
   7. Print Recipe

## Student Gamification

### Settings Logout, turn on voice over, music on/off, volume, edit profile, allergens, turn on notifications, tutorial, support, about, privacy, terms and conditions, acknowledgments, feedback, social media links, etc.

### Choose a recipe to do ⇒ only when in freemode

### Class Static content is uninteresting to users of a young age. We intend to create an interactive and engaging user experience with gamified features for learning about nutrition and STEAM concepts. The gamification features should be fun, interactive ways of learning about nutrition and should create a user control, progression flow, collaboration without hindering the lesson flow in any way.

### Basic lesson plan: Country facts > Academic learning > Cooking > Clean-up and rewards this goes in user flow?

### Find the country on the interactive globe

### Display facts about that country which they will read through

### A small questionnaire about the country’s flag, capital, the language they speak, location, and climate

### Story about people making food-related to the country. The students will read through this and answer questions about the story related to English Learning Standards

### Cover math and science with related questions (Appx 15 min, points for getting answers correct).

### Reading sections - have someone reading it (Sarah) with each word highlighted as the student reads along.

### Will award 2 coins when answered correctly (not valid for textual answers)

### Game (for example nutrition game where the user could match food groups with ingredients)

### Have Quick review questions as an assessment (done to unlock recipe) - right now they are just text on the last page when reading about the country. Guess the flag - be within quick review assessment.

### Following will be the Cooking portion

### wash hands

### recipe gathering game covering food groups and nutrition

### All users should be able to find/do/see substitutes to make recipes gluten, dairy-free and vegan/vegetarian ( i think it should be part of recipe step)

### easy to follow steps for completing the recipe in class (Appx 30-40 min).

### clean up

### rewards for completing the lesson (Appx 10 min).

### Select a country(ie current active lesson country)

### character introduction about the country

### question will be asked

### after completion :

### Review + Post Assessment. Example questions: What did we learn today? Whan new ingredients did we use? (Assessment that students do on their own that covers taught material.)

### Profile Profile of user will generally show the following information

### name Name of the student

### grade Which grade student is part of

### teacher name Name of teacher of class which student is part of

### passport A pictorial display of countries for which student has completed a recipe

### Badges

### favorite ingredients and tools etc

### completed lesson

### recipe

### liked recipe

### don’t like the recipe

### completed recipe

### Reward Systems Give students feedback and improve motivation and progression for students.

### handing out coins throughout the lesson, get fix coins on answering each question. If a student has already answered the question they cannot redeem these coins again.

### The reward systems shouldn’t interfere with the lesson flow and when an answer is incorrect, there should be an option for a retry

### no penalty for incorrect answers although teachers receive a report on how many tries it took for the student to provide the correct answer

### Users can purchase avatar accessories(*need agency input on what other things can be redeemed with coins*) with their coins.

### stamp student’s passports on completion of a lesson

## Single sign-on Need to have Google, Facebook, Clever or other Single Sign-on systems which school uses

## Features for special needs kids Low priority. Everyone including children who are blind or deaf should be able to progress through the lesson flow. We will voice-over the texts and add detailed visuals to each screen. Need agency input on how to do these things for special needs kid

# Analytics

* 1. Add monitoring tools for server and logging   
     Add monitoring tools for servers and logging to achieve a more controllable and reliable production environment.
  2. Capture User Activity  
     To capture all the user activities from clicking, navigation, time spent on each screen, etc.
  3. User Engagement with the app  
     To provide the visualization data of overall app system on the basis of how many users logged in to the system how much time they spend on the apps on a timeline fashion.

# Deliverables

* 1. Performance testing plan and User acceptance testing  
     The agency shall prepare or update a User Acceptance Test (UAT) plan and test scenarios/scripts for users to follow during the initial structured portion of the UAT (following structured testing, the users are encouraged to conduct their own free-form testing). The Agency shall provide the draft version of all documentation, including the Requirements Traceability Matrix (RTM), which shall be delivered with the final product at the time of the initiation of the UAT period. The RTM shall clearly link the new and/or changed requirements to where and how they have been implemented in the system, to assist the users during testing.
  2. Need to have some alerts on issues that happened on the application. The alerts can be sent by emails and should include related logs (Exemple: “User X experienced a loading time over 30 seconds”)
  3. Prepare a CICD pipeline to increase the development productivity
  4. As we wish to follow closely the development to make sure it complies with what we are willing, we would appreciate an agile approach or something similar.
  5. Coverage report and test cases should be there to minimize the testing effort on adding a new feature
  6. Proper git commit in order to ensure that any feature can be rolled backup in case some error occurred
  7. API documentation in proper format using swagger or any other automated api documentation generator
  8. Use of sonar scanner or any other code smell software(opensource)
  9. Use Upto date libraries and avoid the use of depreciated one
  10. Acceptance Criteria:
      1. This app must be able to support up to 300,000 concurrent students (750 schools at 400 students avg in CA).
      2. Loading need to be optimized so loading time is no longer than 8 seconds
      3. List of Supported Browser
         1. Chrome
         2. Safari
         3. Firefox

# Release Milestone schedule

|  |  |  |  |
| --- | --- | --- | --- |
| PHASE NO | Comments | Price ($) | End Date |
| 1 | * CMS * Teacher Dashboard * Gamification in the student portal * Reward systems * Learning objectives * Print recipes * Features for special-needs kids * Single sign-on feature |  | March 1 - 2020 |
| 2 | * Principal dashboard * Realtime messaging between parents and teachers * Easy Ordering (perhaps using [chicory.co](https://chicory.co/) used by recipe websites such as [delish.com](https://www.delish.com/)) |  |  |

# Future work

|  |  |  |  |
| --- | --- | --- | --- |
| Future features | Purpose | Priority | Timeframe |
| Adaptive learning | Gamified with “leveling up” when a student gets a number of questions right they get “experience”. More experience will increase your level and increased levels will mean harder questions) overall. Every student has their progress individually tracked and stored on the cloud server. | A bit early for AI in lesson flow. But it's worth looking at the data needed for AI. | During the developing phase  Here we have to make sure the capabilities needed to be added now, which ideas if any can already be implemented from Ashkans’ list? Please ru those ideas by Haining |
| AR, Object Detection | Users can see calories and information about an ingredient or dish | Only a priority, if this proves useful for the current product | During the design and developing phase, could be after launch |
| Thermometer | Users will be able to select a recipe, which alerts the oven and burners via Bluetooth to adjust the temperature according to the recipe. Then, users will get to see in real-time on the app how the oven is heating up. | Not really a priority, since the lessons should still work without this feature | After launch |
| Typing game | We would like to add a small game after the recipe has been completed to teach kids how to type on a keyboard. The idea would be to have them type the recipe in a document and print it. The user can choose to display, or not, a keyboard on the screen to help him find the letters (letter to type can be magnified). |  | After launch |

# Appendix

* 1. Custom Attributes Types  
     We have used various custom *type* attributes to denote in order to have a consistent view of the document
  2. *type:[Capitalized class name]* (eg type:Country) referring to the Country entity
  3. *type:collection*: one or more occurrence of the attribute
  4. *type:text*: Data will be inputted as text
  5. *type:image*: Data will be inputted in the form of File
  6. *type:A -> type:B* (eg type:text -> type:audio) Given attribute A can also be type of B
  7. type:video
     1. Will be inputted in video format
     2. adaptive video format to make stream smoother may be aws media convert
     3. Need agency input what type of video format is good to be uploaded to the cms system