# Short Description

# Functionalities

## Functionalities implemented by Cole

## Functionalities implemented by Garrett

## Functionalities implemented by Grant

## Functionalities implemented by Nate

## Functionalities implemented by Zach

1. Meal Plan Generation – Food Waste Reduction Algorithm

One of the core appeals of the Overcooked application is its potential to reduce food left over after a week of cooking. We intend to accomplish this by creating meal plans with recipes that overlap. For example, if Recipe A uses half a carton of vegetable stock, and Recipe B also uses half a carton of vegetable stock, then Recipes A and B have a degree of overlap. By creating meal plans with heavily overlapped recipes, the amount of ingredients left over after each meal plan will be reduced. We believe that this emphasis on reducing food waste, as well as our algorithm for achieving this goal, make Overcooked a unique meal planning application.

For each recipe, a ‘leftover score’ can be calculated based on the amount and type of required ingredients not consumed by the recipe. Ingredients will be weighted (wasted meat, for instance, will have a higher leftover score than wasted potatoes). The leftover score (l) for a recipe (r) consisting of the set of ingredients and quantities {(i0, q0), …, (in-1, qn-1)} is defined as

Where d(ij) is the smallest discrete unit of ingredient (ij) that can be purchased, s(ij) is the minimum natural number such that s(ij) \* d(ij) > qj, andW(ij) is the weight associated with ingredient ij. In future versions of the application, weights could be determined by users to minimize the waste of certain ingredients, but for now the weights will be determined by the best judgement of the team members. When selecting single recipes, the user will be presented with the recipes that have the lowest leftover score (in addition to meeting the requirements specified by the user such as dietary restrictions).

The leftover score (L) for a meal plan (m) consisting of the set of recipes {r1, …, rk-1} is defined as

Where T is the set of ingredients {i0, …, ip-1}, the union of all ingredients required by recipes {r1, …, rk-1}. Given the 2D matrix A(m) whose entry Aij =

Overlap 2 buddies N//2 times, then find min leftover score for final recipe.

OR create a score for every meal plan, average the scores of the subset that contains both recipe A and B to determine how well, on average, they work together. Update buddies accordingly. Do that for meal plans of size 2,3,4,5,6,7 since recipes that work well with 6 others may not work as well with just 3.

Ask group mates