MRes Project Meeting 3

Attendees: Maria Fox, Sophie Turner.

Date: 03/05/22

Time: 15:00

Location: Zoom.

Agenda

Progress review, discuss occupancy data.

Progress

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| Task | Assignee(s) | Deadline | Done | Comments |
| Implement a practice 'banquet' optimisation program in Minizinc with criteria specified by Maria. | Sophie | 3/5/22 | Yes | Continue expanding this. |
| Get access to all the necessary Rothera data (future booked stays and past food orders). | Sophie | 3/5/22 | No | Try emailing Rachael and asking again. |

Sophie finished the discrete modelling Coursera course.

Questions/problems

Need access to data. Ask Nopi for food order historical data.

Does the canteen prepare a selection of meals that people choose from at meal time, or do people get a menu at meal times and then their chosen meal is prepared, or do people get a menu before their stay (like on cruise ships) which is planned in advance, or is there no choice of meals? The latter two options would be better for minimising waste. Asked Nopi but Nopi is on leave. For now Sophie will assume no choice of meals to simplify the program in its early stages of development.

Last week was very busy and this week is also very busy for Sophie with a lot of University sessions and other work to do. Sophie does not have much time to work on this project at the moment.

Discussion

Include nutritional information as constraints in the program.

As well as including necessary amounts of nutrients, limit the amounts of unhealthy foods such as sugar.

Maria gave a dataset to Sophie containing greenhouse gas emissions associated with Rothera. Check Edmund’s report and references for units and more information.

Sophie has implemented dietary categories as constrainable features in the practice program, including vegetarian diets. Maria suggested splitting this into fish, white meat and red meat to allow more flexible variants of these diets. This could also help to cut out/down red meats from the menu, as they are the highest contributors to greenhouse gas emissions.

Sophie should learn how to interact MiniZinc with other languages and read in data from .csv format, starting with the numbers of people data. Sophie should try reconstructing the plots from the data to check she has the right data in the right form. Sophie should only look at New Bransfield House for now as that is the building containing the kitchen.

Scaling up the program data from 10 to 100 people has caused the computation time to increase too much. One way around this might be to divide people into dietary categories based on nutritional requirements and restrictions and perform computation on each category rather than each individual person. The result could then be multiplied up as required depending on the number of people. For now, numbers alone will suffice and specific meals need not be prescribed to individuals.

Next tasks

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| --- | --- | --- | --- |
| Task | Assignee(s) | Deadline | Comments |
| Figure out how to read in .csv and large amounts of data to MiniZinc. | Sophie | 17/3/22 |  |
| Ask Nopi for all the data and information required. | Sophie | 17/3/22 | Nopi is on leave. |
| Figure out how to use MiniZinc with other languages. | Sophie | 17/3/22 |  |
| Try reconstructing the plots from the kitchen data. | Sophie | 17/5/22 |  |
| Reduce execution time of current algo where possible. Improve scalability. | Sophie | Ongoing |  |
| Continue to expand program skeleton to include more aspects of the project. | Sophie | Ongoing |  |

Next meeting

Agenda: Progress review.

Attendees: Maria Fox, Sophie Turner.

Date: 17/5/22

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Location: Zoom.