Heuristic Evaluation of Nutri-GOOD

1. Problem
Nutri-GOOD encourages a healthy diet for the elderly by allowing users to track nutritional value simply by selecting meals for each week.

2. Violations Found
1. **[H2-1. Visibility of system status] [Severity 2] [Found by: A, B]**
On the second settings page (Dietary Goals), a watch icon is shown next to the word Synced, but this icon and word are not shown anywhere else in the app. The lack of visibility of this icon does not keep the user well informed about whether the system is synced. If the intention was to show whether the system is synced, I would suggest using this same icon throughout the app; otherwise, if this is meant to be a setting, make the option of changing this setting more obvious.

2. [H2-1 Visibility of system status] [Severity 2] [Found by: B]
On the data page, it is unclear whether the data is synced/saved automatically or whether the user has to go into the Dietary Goals subpage and wait to see whether it has synced or not. There is just no way of knowing whether the data was saved, or whether the data is saved or just not synced. It would be nice for the user to know that their data was saved so that they can exit the screen.
Fix: Have a line of text that tells the user the status of their data on the main settings page, not the subpage ("Saving...", "Saved", "Syncing...", "Synched")

3. [H2-1 Visibility of system status] [Severity 4] [Found by: B]
Neither the checkout/cart page nor anywhere in the app, is there information about how much each item costs. As a user I would want to know how much I am spending. If this is a subscription service, this is unclear and should be indicated somewhere that it is one price for unlimited meals or X amount of meals.
Fix: Indicate the price of each meal in the more info screen or in the list of meals in each category

4. [H2-2. Match between system and the real world] [Severity 1][Found by: A]
On the home screen, a yellow icon with glasses is used to represent Dietary Tips. Unlike the icons for Food Selection and Data, this icon does not represent its subject as intuitively. Since this section of the app contains only news articles, I would suggest using a newspaper logo.

5.[H2-2. Match between system and the real world] [Severity 1] [Found by: A, B]
On the home screen, a pink icon with a double helix is used to represent Profile. Although I would immediately recognize the icon as DNA and with a little more thought understand that DNA is unique to each individual, I'm not certain that most elderly users would know this off the top of their heads. I would recommend using a more generic logo of a person's silhouette, which is more typically used to represent a profile.

6. [H2-2. Match between system and the real world] [Severity 2] [Found by: A]
On the Data page, red and green are used to indicate negative calories (burnt from exercise) and positive calories (gained from food), respectively. This is confusing because in the real world red is typically associated with bad results and green with good, whereas in this case losing calories is typically seen as a good thing. I would choose a different color scheme for the graph.

7. [H2-2. Match between system and the real world] [Severity 3] [Found by: A]
On the Breakfast selection page, it is not obvious that each "0 meals" can be tapped on to change the number of meals. Since the page is in a grid / spreadsheet-like format, "0 meals" button does not look like a typical button. I would make them look more like typical buttons by separating each row and column with some whitespace and perhaps rounding the corners.

8. [H2-3 User control and freedom] [Severity 2] [Found by: A,B]
Once you go deep into the flow of any of the 4 options (food selection, data, dietary tips), you have to hit back several times to get to the "home" screen and switch tasks. It takes awhile and is easy to get lost within the app. The user has little freedom in easily switching between tasks. This is also an issue when making food selections. After selecting food, the user has to hit back several times to be able to select another type of food.
Fix: Change to a tabular application or have a hidden menu that allows you to switch between the 4 base options easily.

9. [H2-3. User control and freedom] [Severity 2] [Found by: A]
After clicking on an article on the Dietary News page, there is no obvious back button or exit icon to get the user back to the main News page. The navigation is unintuitive and might prevent user control. Add some sort of back or exit button.

10. [H2-3 User control and freedom] [Severity 2] [Found by: B]
On the data page, users are unable to change the days to view data for or the time frame to see the long-term data.

Fix: Add a UI component that allows the user to select a day to view data for

11. [H2-4 Consistency and Standards] [Severity 2] [Found by: B]
On the Settings page, the interface has a green button at the bottom saying "Update Dietary Goals". Upon first using this screen, I thought the button would update/save the information changed in the initial profile page. It actually takes you to another page of settings you can update. Having this button at the bottom with the word "update" in most other cases would update the screen and thus this use doesn't seem to match platform conventions.
Fix: Add another row in the "Profile" section under Height, that says "Other Dietary Goals" that the user can click and will take them to the page to update their goals. Or use some other button/way to link to the other page and not the green button. Possibly change the text to "View Dietary Goals" and then change the button color and size.

12. [H2-4. Consistency and standards] [Severity 2] [Found by: A]
On the home page, the bottom left icon is labeled as Dietary Tips, but upon tapping the icon, the page shown is labeled as Dietary News. This is inconsistent usage. Use the same section name in both places.

13. [H2-4. Consistency and standards] [Severity 3] [Found by: A, B]
On the Update Dietary Goals page, the user chooses max intake (e.g. calories, fats). It is not obvious from the prototype how changing these settings affects functionality of ordering and viewing meals in the Food Selection setting. Use consistent wording across the app to make this more evident.

14. [H2-4 Consistency and Standards] [Severity 3] [Found by: B]
On the "Breakfast" page, you are able to click the gray "0 meals" box and I'm assuming, choose the number of meals you want for that item. With this functionality it is unclear whether buy changing the value it will automatically add the item to my cart, since on the individual pages you actually have to click "Add to Cart".
Fix: Change the UI to also use the phrase "Add to Cart" and make it more button like or just have some help text that explains the function to the user.

15. [H2-4 Consistency and standards] [Severity 1] [Found by: B]
Within the profile page, under the update dietary goals page, there is a way to update your maximum intake per day of various items, but no way to add your minimum intake per day. Users might need a minimum amount of protein or fiber per day in their diet. It should be consistent in allowing users to give minimum amounts.
Fix: Add a section for "Min Intake Per Day"

16. [H2-5. Error prevention] [Severity 3] [Found by: A]

On the Breakfast selection page, it is unclear what the "0 meals" entries in the gray column mean. From the medium-fi prototype presentation, I understand that users are supposed to choose multiple meals for multiple people (e.g. within their household). However, this could cause errors because the user wouldn't know whether multiple meals are for multiple people (during a single mealtime) or the user herself (over the course of multiple meals). I would use this column to choose the number of meals for a single person and have a setting for how many portions of each meal to buy. For example, if the user lives with another person, she will probably almost always want to buy two portions of each meal.

17. [H2-5 Error Prevention] [Severity 1] [Found by: B]
On the Settings page, it currently is set to an age of 3, weight of 3, and height of 0'2". It would be best if you didn't allow users to even enter in these impossible values to prevent users from accidentally giving the system incorrect data.
Fix: Don't allow entries that are unreasonable in the choices or maybe have a confirmation alert that tells them they have entered something abnormal and advise them to change it.

18. [H2-6. Recognition rather than recall] [Severity 2] [Found by: A]
In the Food Selection part of the app, it is unclear to the user what day or timeframe meals are being selected for. This is considered a violation because the elderly user needs to recall the dates of each meal in order to effectively plan meals. If the user is meant to choose meals for a single day at a time, display the date and day of week at the top, or if the user should choose meals for a multi-day timeframe (e.g. 7 days, 10 days), I would create a flow that guides them in choosing meals a day at a time, also with the date and day of week clearly displayed.

19. [H2-6 Recognition rather than recall] [Severity 3] [Found by: B]
On the data page, there is no information about the nutrients eaten. For a user to know this, they would have to remember the nutrient values for each individual food to make sure they met their target nutrition goals. Furthermore, one of your tasks is to know what you ate. Right now, users also have to recall what meals they actually ate each day or even in general, as there's no place to see the meals you have ordered in the past, or assign a day to when you ate them. Because this functionality doesn't exist, there is no way to know whether you actually met or will meet your nutritional goals each day.
Fix: Have functionality so that when the user is planning meals, they can make sure they meet all their nutritional requirements for each day. Also have functionality to see the aggregate nutrients in the data section rather than just calories.

20. [H2-6 Recognition rather recall] [Severity 1] [Found by: B]
On the Dietary News page, there is no way for users to know what articles they have read before or see articles that they want to read again.

21. [H2-7. Flexibility and efficiency of use] [Severity 2] [Found by: A]
There is no way for the user to add items to the cart directly from the main Breakfast selection page (as opposed to the detail page after tapping More info). For experienced users, it would be annoying and unnecessary to have to enter the detail page in order to add a meal that they have already seen. I would add an "Add to cart" icon button for each row.

22. [H2-7. Flexibility and efficiency of use] [Severity 1] [Found by: A]
In the Settings section, the first page shows basic information like age and gender, while the second shows dietary goal settings. I think this setup is a bit inefficient because the settings that are most likely to be changed (i.e. the goal settings) take more steps to access. I would collapse the profile settings into a short summary with an edit option but expect that users wouldn't often change them. Then the dietary goals could also be on the first settings page to make them easier to access.

23. [H2-7 Flexibility and Efficiency of Use] [Severity 2] [Found by: B]

When ordering food, on an individual item page ("Breakfast Cereal"), there is no way to add more than one meal to the cart. Right now, you have to add it to the cart, and then go to the shopping cart page and change the number of meals from there.
Fix: Have a field on each items page that indicates the number of units the user wants to add to the cart

24. [H2-7 Flexibility and efficiency of use] [Severity 2] [Found by: B]
Expert users will probably know which meals they want after awhile, but probably not all of them will fit under recent and they may not be considered a favorite. So they will then have to drill down into the breakfast, lunch, and dinner categories and scroll to find the meal. This is a long process for people who already know what they want and now have to manually search for it
Fix: Add search functionality/search bar that allows users to quickly type in the name of the meal they are looking for and get results where they can easily add the item to the cart. This would also be applicable in the Dietary News section

25. [H2-7 Flexibility and efficiency of use] [Severity 2] [Found by: A, B]
The user can add a meal to favorites but there is no way to view all of the user's favorite meals. This functionality is incomplete. Add a way to view favorites.

26. [H2-8 Aesthetic and minimalist design] [Severity 1] [Found by: B]
On the Data screen, the graph is very crowded and hard to read, especially with compared to the simple single bar graph at the top. For seniors especially, the small fonts will be hard to read and it may be hard for them to use the data at the point.
Fix: Perhaps use a line graph over the course of a time period, so not needing to show each day's date. Then allow users to drill down further if they would like. Also maybe put calories eaten and calories burned both on the positive y axis.

27. [H2-8. Aesthetic and minimalist design] [Severity 1] [Found by: A]
The graphic design of the icons on the front page have a very different aesthetic from the stock photos on the other pages (e.g. Food Selection and Dietary Tips). The visuals lack continuity. Use a consistent source for icons and use them throughout the app.

28. [H2-8 Aesthetic and minimalist design] [Severity 1] [Found by: B]
On the "Breakfast" page, all the meals have this gray and green portion for the number of meals and then more info. This is really jarring and takes away from the classy and sleek feel of the application.
Fix: Perhaps use a different color gray, and make the buttons smaller so they don't run up against one another horizontally, and also vertically with the next rows buttons.

29. [H2-10 Help and Documentation] [Severity 1] [Found by: B]
On the Data page, there is information on sleep efficiency and other statistics. What exactly the data means, represents, or even what it implicates might be unknown to seniors. For example, right now it is unclear whether "Sleep Quality" represents how long I slept and "Deficit" is the hours missed that I needed. Or whether it represents the actual quality of my sleep in terms of how much I was tossing and turning or woke up during the night. Also, may fitness apps explain how its important to eat at least X number of calories a day if you are exercising Y amount. This would probably be valuable to a senior who doesn't know a lot about nutrition.
Fix: Have helpful alerts or text that explains the meaning of each graph and any implications it's data. Perhaps have a "more info" button for each graph.

30. [H2-10 Help and Documentation] [Severity 2] [Found by: B]
This is very closely tied with #7, but it is unclear what it means to sync your data on the Settings page/Dietary Goals subpage. Can the app be used offline? Can the data be saved but not synced? How does a user sync their data.

Fix: Give the user a helpful dialogue that explains what it means to sync the data and what steps need to be taken to ensure their data is stored how they want it to be

31. [H2-10 Help and Documentation] [Severity 2] [Found by: B]
On the Breakfast Cereal screen, there is the options to add strawberries to the meal. This was clear to me after seeing the plus, but before seeing it, at first glance it looked like the meal included the strawberries. This might be confusing to the users.
Fix: Add some UI that makes that row standout more so the users don't think it is already included in the meal. Or separate that row into another section of add-ons.

32. [H2-10 Help and Documentation] [Severity 1] [Found by: B]
On the individual item pages, it is hard to know what each food item/meal contains in regards to the ingredients, and also just an overview of what the dish is. For example, not everybody, especially people from different cultural backgrounds, would know what eggs benedict is. Also, people could have dislikes to certain ingredients but not allergies (which I'm assuming is taken care of due to the settings).
Fix: Add a short explanation of each meal. Add another page to view the ingredients within each meal.

3. Summary of Violations

Category	# Viol. (sev 0)	# Viol. (sev 1)	# Viol. (sev 2)	# Viol. (sev 3)	# Viol. (sev 4)	# Viol. (total)
[H2-1: Visibility of Status]	0	0	2	0	1	**3**
[H2-2: Match Sys & World]	0	2	1	1	0	**4**
[H2-3: User Control]	0	0	3	0	0	**3**
[H2-4: Consistency]	0	1	2	2	0	**5**
[H2-5: Error Prevention]	0	1	0	1	0	**2**
[H2-6: Recognition not Recall]	0	1	1	1	0	**3**
[H2-7: Efficiency of Use]	0	1	4	0	0	**5**
[H2-8: Minimalist Design]	0	3	0	0	0	**3**
[H2-9: Help Users with Errors]	0	0	0	0	0	**0**
[H2-10: Documentation]	0	2	2	0	0	**4**
Total Violations by Severity	**0**	**11**	**15**	**5**	**1**	**32**

4. Evaluation Statistics

Severity / Evaluator	Evaluator A	Evaluator B
sev. 0	N/A	N/A
sev. 1	4/11 = 36%	8/11 = 73%
sev. 2	8/15 = 53%	10/15 = 67%
sev. 3	3/5 = 60%	3/5 = 60%
sev. 4	0/1 = 0%	1/1 = 100%
total (sev. 3 & 4)	3/6 = 50%	4/6 = 67%
total (all severity levels)	15/32 = 47%	22/32 = 69%

5. Summary Recommendations

Overall, the Nutri-GOOD prototype was very thorough in its design and implementation. The Nutri-GOOD team did a great job of demonstrating functionality in many separate sections of the app. My main feedback would be to focus on making the entire application better integrated and easier to navigate. Currently, we feel that the app is not entirely clear about how each section influences the functionality of other sections. Without an explanation, for example, it is unclear how calorie information from meal selection translates to the calorie information on the graphs in the data section. Another example is that the max intake settings do not visibly affect the functionality of the meal selection section. It would also be desirable to make navigating to different sections easier, such as by having a home button instead of needing to tap back multiple times. Additionally, many violations we found in the heuristic evaluation centered around making naming conventions and icons more intuitive to the average user.

We also found a larger trend in your application where it seems that the functionality required to accomplish two of your main tasks is missing. Your problem statement states "the elderly need to keep track of their nutritional intake". Two of your tasks are to "know what you ate" and to "select a well-balanced meal". However, your app currently doesn't allow users to see specific nutrient content for meals, to view meals they have eaten in the past, to record which days they ate certain meals (which is also required for the data page), or information/restrictions to make sure they meet minimum nutrient requirements each day. Overall, it seems like there is a lack of information needed to make the proper meal choices or to improve in nutritional habits. These things seem like requirements in meeting your core tasks and solving your proposed problem. I would recommend you add some of these things in your design.

Our general impression on using your prototype is that it is simple and relatively easy for the elderly to use. For the most part, you use large buttons (although this can be improved in some spaces), easy to read fonts (could be bigger in some places), easy to understand icons (see Violation 17), and have tasty meals. The color palette is nice to look at as well. The app has a friendly feel. It is not super "Apple-y" with super sleek, hidden, and minimalistic gray-scaled and fancy UI where it is not necessarily needed or possibly even unhelpful. We could picture our grandmas using this and not being too frustrated in navigating it.

I think because this is an app for the elderly, it could use some more textual clues/help in some places in general (we noted specific places in the violations). What's interesting is that only having the back button might be easy for the elderly to navigate because it's so simple and there is no other option so it will limit confusing the UI, but it is also really bad that I might have to tap back 5+ times to get back to the home screen.