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INSO4101 – Sec. 040

HW 1 – Chapters 1 and 2

Project Team 8: Flovver – Period Tracker and Ovulation Calendar

Chapter 1

1. Domain Entities:

Domain Entities
Calendar - for tracking period cycles and ovulation.
Menstruation Cycle – data used for estimation for both period and ovulation cycles.
Users (Women): users that will input the data.

2. Domain Functions:

Domain Functions
"Calculate next period cycle" – the function would take all the previous menstrual cycle data provided by the user (if there is any) and estimate a possible date for the start of their next period cycle, displaying said information automatically on the calendar.
"Calculate next ovulation cycle" – the function would take all the previous menstrual cycle data provided by the user (if there is any) and estimate a possible date for the start of their next ovulation cycle, displaying said information automatically on the calendar.
"Calculate next fertile period" – the function would take all the previous menstrual cycle data provided by the user (if there is any) and estimate a possible period of time in which the woman would be the most fertile, displaying the information automatically on the calendar.
"Share information" – the function would ask the user to input the person they want to share their calendar information with, and after they input said data, the calendar will be displayed to the other user.
"Input Menstrual Cycle data" – the function would prompt an input on the user in which they will be asked to introduce their previous menstrual cycle information, so it can later be used in calculation.
"Cycle Estimation Notification" – Once the user inputs information, and the next menstrual cycle has been calculated, this function would notify the user that their next cycle is soon to begin, if that were the case.

3. Domain Events:

Domain Events
"next estimated cycle is soon" – if the user's menstrual cycle is soon to begin, this event would call the "Cycle Estimation Notification" function, in which the user will be notified that their next menstrual cycle is soon to come.
"the user wants to share their info with another user" – in case the user wants to share their information with another user, this event would call the "Share information" function.
"the user inputs their menstrual cycle data" – if the user inputs their data, the app will then take that data and together with any previous data calculate the user's next menstrual cycle.

"user wants previous data" – if the user wants to see their previous input data, the app will show them the calendar with the previous input data in the dates it belongs.

4. Domain Behaviors:

Domain Behaviors
Menstrual cycle display – the user asks the application for their menstrual cycle data, which is then displayed to the user on a calendar system.
Menstrual cycle share – the user asks the application to share their menstrual cycle data with a specific user, the user is then prompted for the user they want to share their information with, and if the input is valid then the information is shared with the other user.
Menstrual cycle input – the user asks the application to store their menstrual cycle data, the application then asks the user for the input of the data and after the data is introduced, it is then stored and shown on the calendar, while also updating the estimated date for the next cycle.

5. Domain Requirements:

| Domain Requirements |
| --- |
| Calendar: the software must allow the usage of a calendar to show the information to the user. |
| Data Storage – the software must allow for the data input by the user to be stored in order to use it for calculations and show it to the user. |
| Sharing – the software must allow the user to share their information with other users using the same software. |

6. Interface Requirements:

| Interface Requirements |
| --- |
| Sharing – the software must update any shared information with users that are linked. |
| Data Storage – the software must allow for data storage and display it on a calendar. |
| Calendar – the software must allow for data to be on different dates in the calendar. |

7. Machine Requirements:

Machine Requirements
Calculations – the machine must allow the software to do basic algebraic calculations.
Synchronization – the machine must allow the software to connect to an internet connection so the information can be shared when users decide to do so.

8. Software Architecture Design:
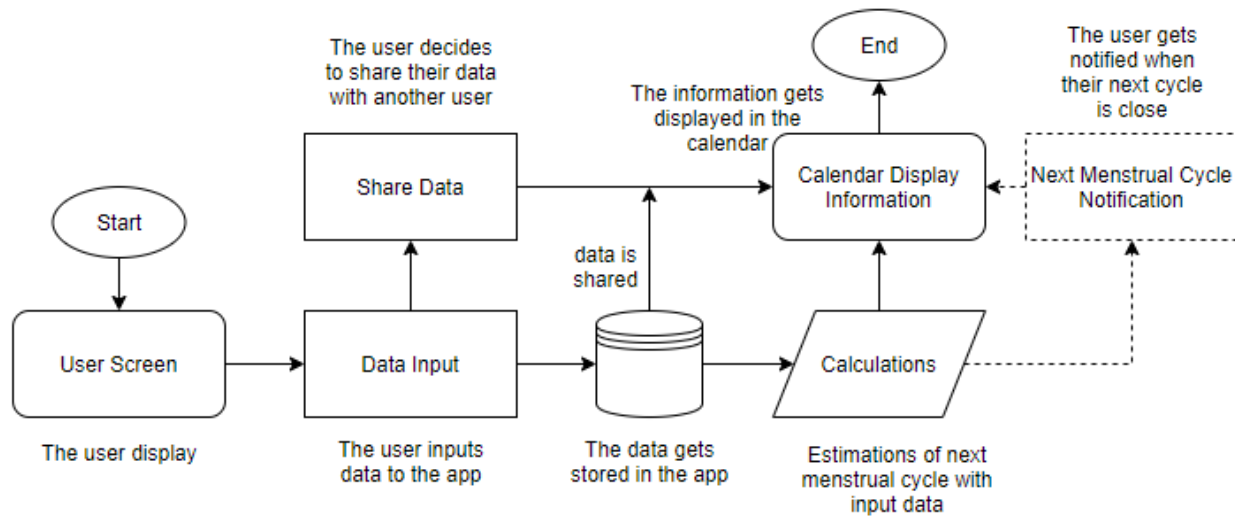
9. Software Component Design:
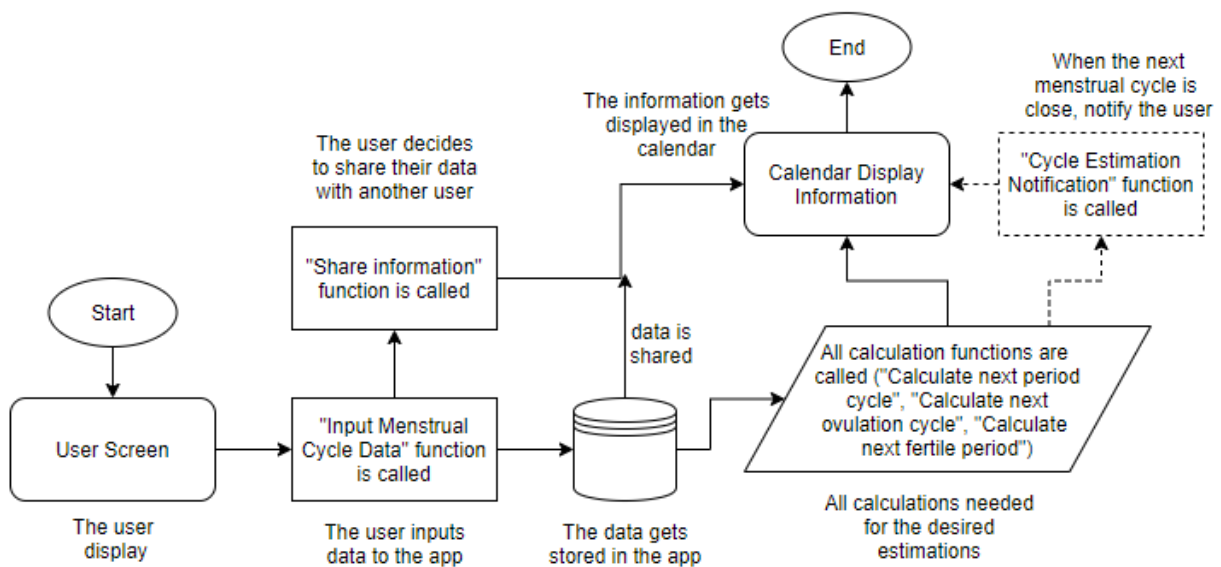
Chapter 2

1. Informative Domain Development Documents:

Name: Yavier Mari

Place: UPRM

Date: February 24, 2020

Partners: Guillermo Carrión, Yamil Hernández

Current Situation: The current situation is that, given that women have their menstrual and/or ovulation cycles, it is not always easy to track and/or communicate these cycles.

Need: There is a need to facilitate tracking menstrual and ovulation cycles and a way to communicate this information easily.

Ideas: The idea is to create an application that will help women track their menstrual and ovulation cycles and allow the user to share these cycles with the people they select.

Concepts: In a more specific way, the user will input their menstrual cycle data and by a series of calculations with previous data, the application will proceed to return approximation dates for their following cycles. As for the shareable aspect, the user will be able to share their cycle with people they select to sync their apps with.

Scope and Span: The scope and span for this project is to implement an efficient menstrual cycle tracker, as well as an ovulation tracker. In addition to this, we plan on implementing a feature to share these cycles with the people the user wishes to do so with.

Synopsis: The project is to develop an application that allows users to track their menstrual and ovulation cycles, with approximated estimations of next cycles, and grant the user the ability to share this information with the people they select. Thus, the domain model is expected to cover subjects such as: (1) Menstrual Cycles: tracking and estimation of the next cycle based on input data and biological usual pattern of the menstrual cycle; (2) Irregular Cycles: adapting the estimations to cases in which the menstrual cycle deviates from a set pattern; (3) Ovulation Periods: Estimate based on the cycle the periods in which the woman is more likely to get pregnant if the woman has sexual relations; (4) Intercourse Tracking: keep track of the times the person is having sex and if the intent is to get pregnant or not; and so on.

2. Informative Requirements Development Documents:

Name: Yavier Mari

Place: UPRM

Date: February 24, 2020

Partners: Guillermo Carrión, Yamil Hernández

Current Situation: For many women, it might be annoying or a hassle to remember their menstrual cycles and all the details that come with it, such as ovulating cycles and fertile periods, and can be often hard to communicate these things to someone else.

Need: There is a need for a system that can keep track of women's menstrual cycles and make estimations of their next menstrual cycle, ovulation cycle and fertile periods, as well as an easier way to share this information with others if needed be.

Ideas: The idea is to build an application that can track and estimate women's menstrual cycles with data provided by the user, while also being able to sync this information with selected users for easier sharing.

Concepts: The concepts include: (1) Being able to store data on the user's menstrual cycle; (2) Allowing the user to receive estimations on the date of their next cycle; (3) Being able to share their cycle information with selected users.

Scope and Span: The issue in general is to be able to store data about menstrual cycles, accurately estimate the user's next menstrual cycle utilizing the information provided by the user, and being able to share this information easily when the user decides to do so. So, in a more specific manner, we would build a system to easily understand and document the user's own menstrual cycles and being able to communicate this stored information with others if they wish.

Synopsis: Therefore, in summary, the goal is to develop and application that allows users to easily document their own menstrual cycles, in order to make remembering this information easier, as well as being able to receive estimations of following menstrual cycles. Added to this, it would allow for easier communication to whoever the user decides to share the information with. Thus, our requirement model would include: (1) A data storage system, in which the user can see their previous input data; (2) A calendar, to make documenting this information much easier and receiving estimations in a more organized way; (3) A sharing function, that would allow the user to share their information to whoever they decide to do so with, through the same application, most likely using the internet.

3. Descriptive Rough Domain Sketches:

We desire an application that provides the users (mainly women) an easy way to track down their menstrual cycles and get an accurate estimation of their next cycle. Our domain would include functions such as calculating the user's next menstrual cycle, calculating the user's next ovulating period regarding the previous data, and calculating the user's next fertile period utilizing the same data, as well as the ability to share such information with other users of their choosing. All of the information the user inputs gets stored in the application and displays it on a calendar-based display for easier understanding.

4. Concept Analysis of Rough Domain Sketches:

Pertaining to the domain sketches, we have the user input information, which is their menstrual cycle data, and the calculations made with said previous information, both abstract concepts that could be condense into one concept: *data*. For the rest of the abstracts remaining, these being the calendar-based display and sharing the information with other users, we unify these abstracts into the concept of *system display*.

5. Descriptive Domain Terminology:

Terminology
Menstrual cycle – it is defined as the process of ovulation and menstruation in women. The menstrual cycle can range anywhere between 21 to 35 days, with the average menstrual cycle being 28 days long. This data will be input by the user and be used to estimate future menstrual cycles, ovulation cycles and fertile periods.
Ovulation cycle – it refers to the release of an egg during menstruation in females, which enables fertilization to occur. It typically lasts one day and occurs in the middle of a woman's menstrual cycle, about two weeks before she expects her period (may vary from person to person). This will be calculated by the application with the menstrual cycle data.
Fertile period – It is defined as the period in the menstrual cycle during which conception is most likely to occur, usually 10 to 18 days after the onset of menstruation. This will be calculated by the application with the menstrual cycle data.

6. Descriptive Domain Narrative:

To bring greater understanding, it is planned to create an application that effectively allows users, mainly women, to easily store informational data pertaining to their menstrual cycles and in return, the user will receive estimations regarding their next menstrual cycle by applying a series of calculations regarding any previous data. In conjunction with menstrual cycles, the user will also get estimations to other information such as their ovulation cycles, referring to the period in which they will be able to conceive, as well as their fertile periods, which refers to the moment they are the most probable to conceive. The user will be allowed to see their information at all times on a calendar that organizes their data, as well as the estimations mentioned above. Since

talking about menstruation and informing others of menstrual cycles might not be an easy thing to the users, the application will implement a feature that allows the user to share their information with the users of their choosing. This will facilitate communication other people such as their significant others or even their medics.

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