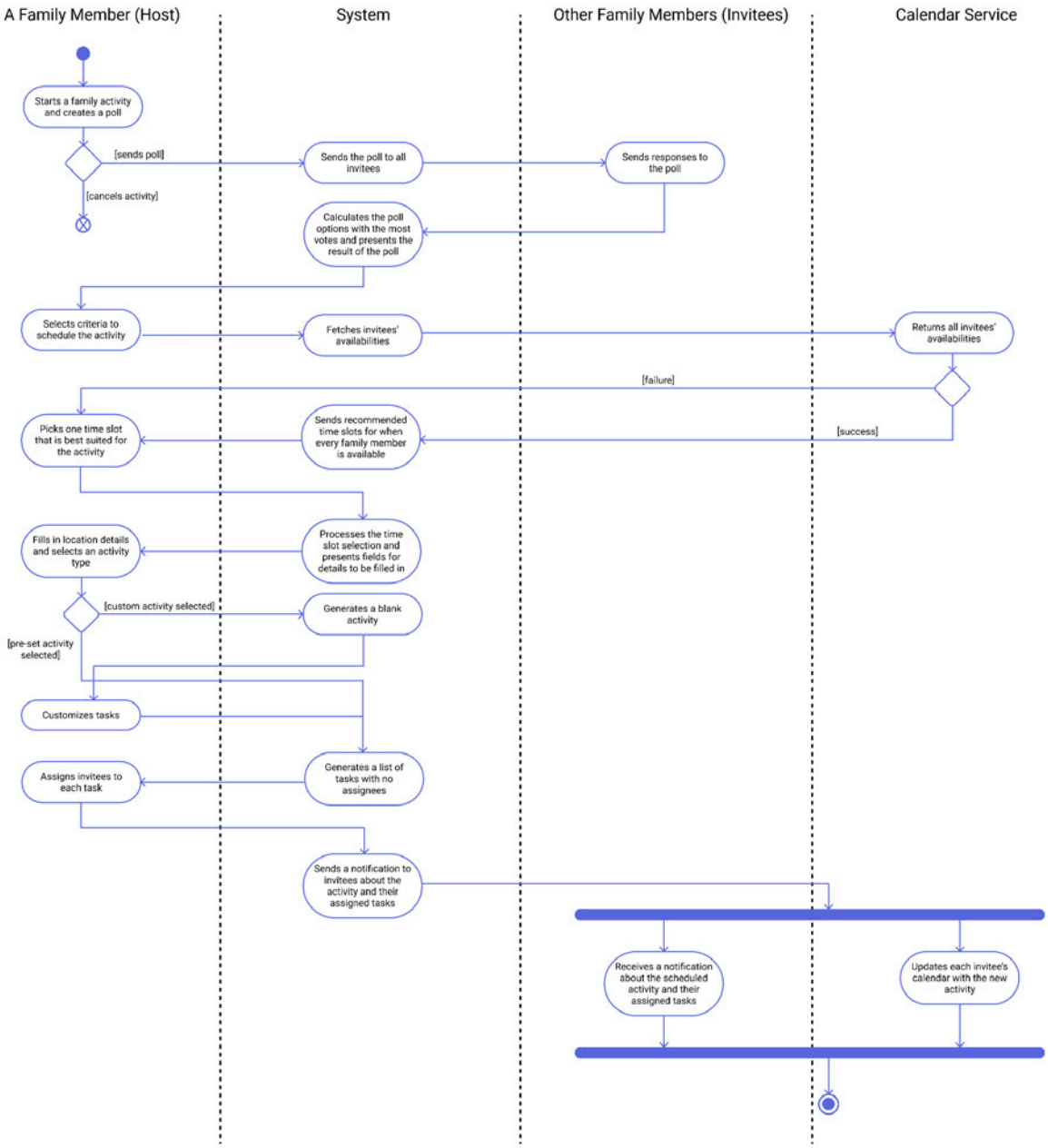
Use Case 1: Plan a Family Activity



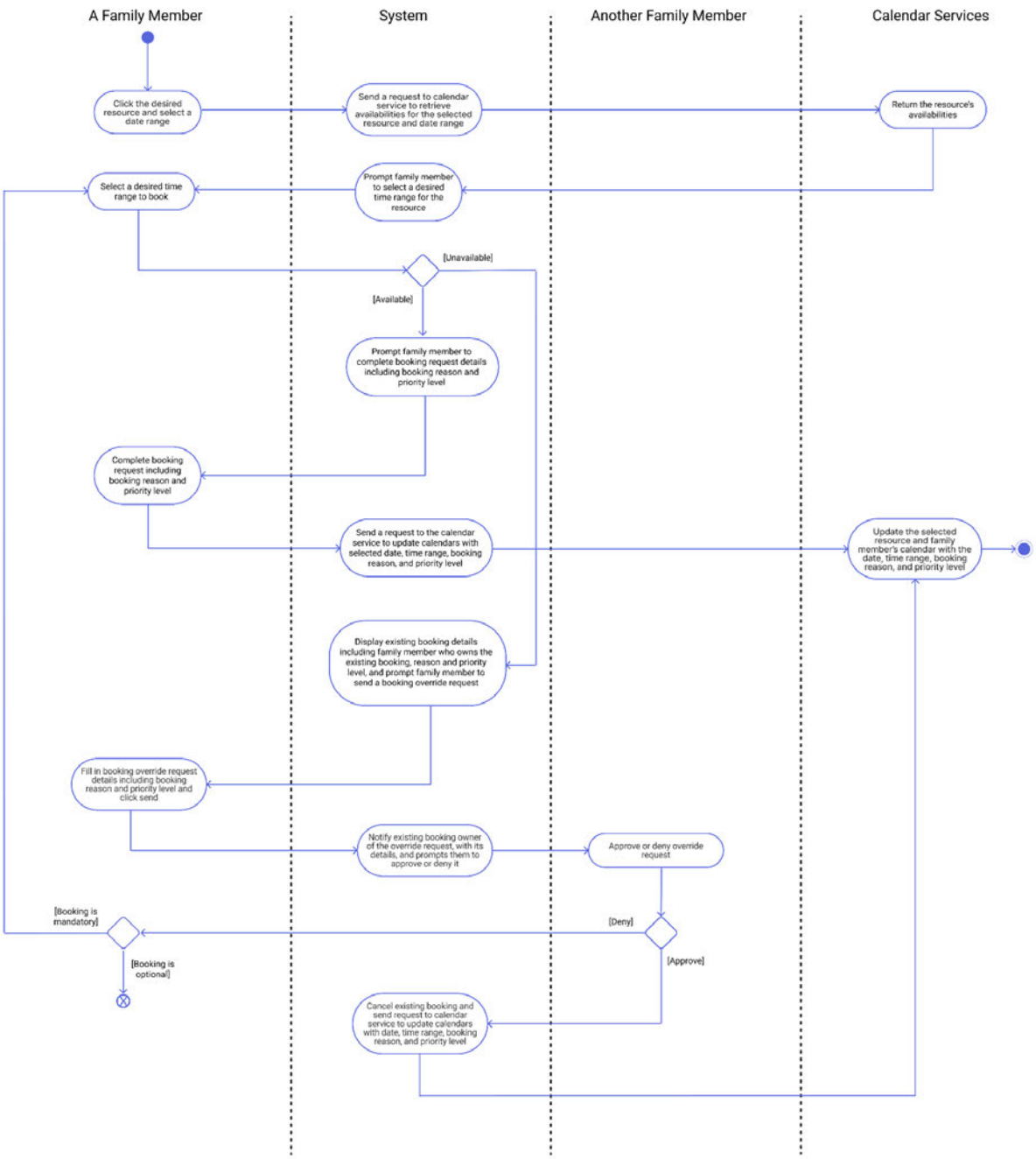
Description

In this model, the host starts by creating an activity and sending out a poll to the invited family members to get an understanding of which activities will be the most popular among the family. The system takes care of calculating which poll option is the most popular among the invitees who voted, and sends that to the host. Then, based on the host's specified scheduling criteria, the system checks each participating family member's calendar from an integration with the calendar service, and presents time slots that every invited family member (including the host) is available for. The host selects one of the time slots presented as the scheduled date and time for the family activity. Next, the host fills in the location that the family activity will take place at, and can select or create a custom family activity type. Then, using that family activity type, the system generates a list of tasks that can be assigned to other family members for the tasks that are required to be completed for the family activity. Lastly, the system finalises the activity planning by sending a notification to all family members about the activity and their assigned tasks. At the same time as the notification is being sent out, the system also updates the calendars of all family members who are participating in this new family activity through the integration with the calendar service.

Rationale

An activity diagram was chosen for the use case of planning a family activity because this use case follows a procedure to successfully accomplish the task of planning an activity for the family. There is a consistent back-and-forth between the family member who initiates the planning of an activity and the system that responds to the different choices and input that the family member has made. There are also interactions with other actors, such as the calendar service and other family members, that model a sequence of steps in the procedure to plan the activity.

Use Case 2: Coordinate the Usage of Shared Resources



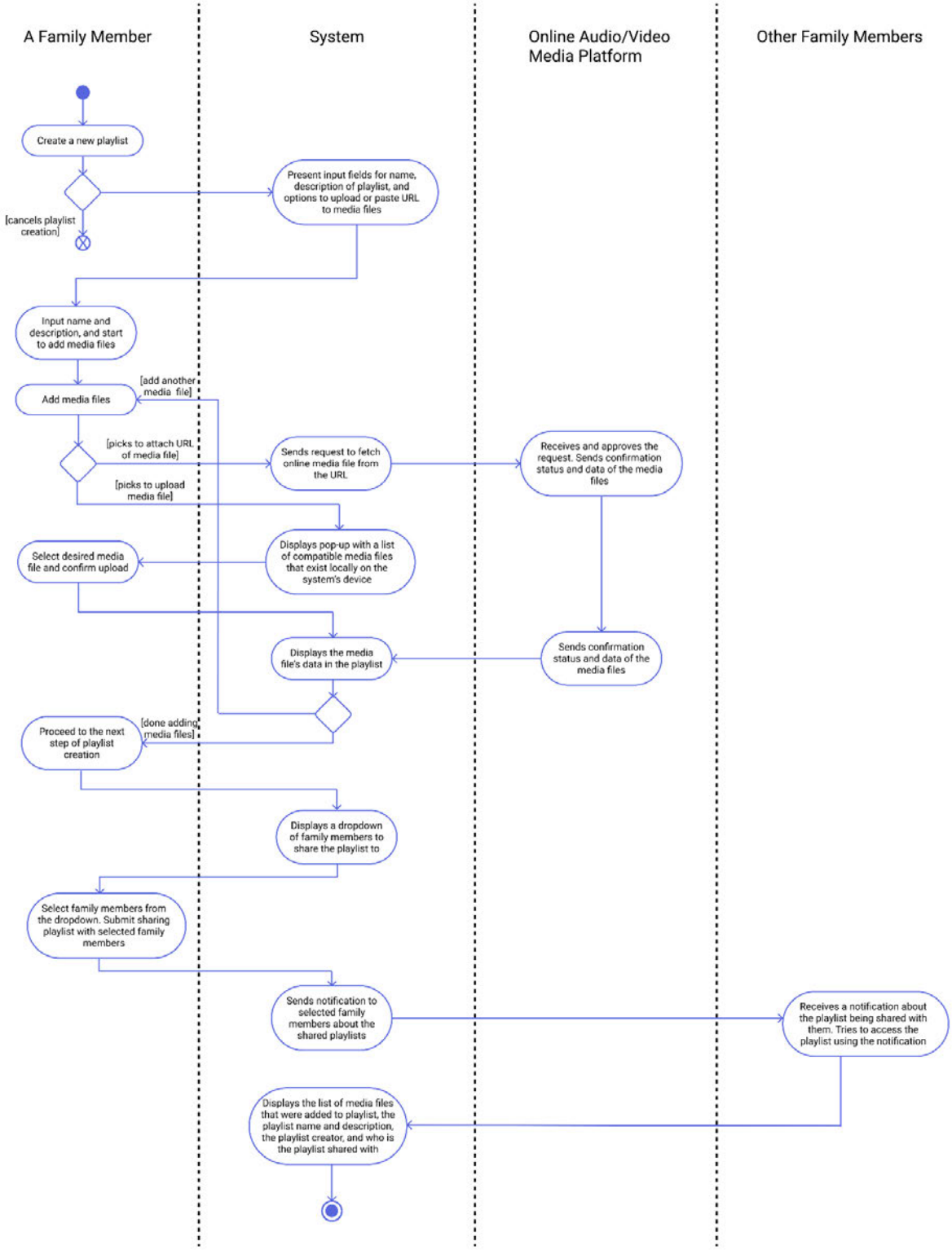
Description

In this model, a family member who wants to use a shared resource among the family starts by selecting the desired resource and date range they want to book out. The system then retrieves the availabilities of the selected resource during the selected date range by sending a request to the calendar service, which returns the availabilities. The system then prompts the family member to select a time range within the selected date range to book, and the system will check if that time range is available by comparing it to the availabilities retrieved from the calendar service. If it is available, the system prompts the family member to complete the booking by entering booking details, including the booking reason and priority level. Once the family member completes these details, the system sends a request to the calendar service to update the resource and family member's calendars with the booking date, time range, reason, and priority level. Otherwise, if the selected time range is not available, the system prompts the family member to complete a booking override request, which also requires the input of the booking reason and priority level. Once the family member enters these details, the system notifies the existing booking's owner (another family member), to approve or deny this request. If the other family member approves it, the system cancels the existing booking and replaces it with the new one by sending a request to the calendar service to update the necessary calendars. If the other family member denies it, the system prompts the family member to re-enter a new time range and repeat the time booking process.

Rationale

An activity diagram was chosen for the use case of coordinating the usage of shared resources because this use case follows a procedure to successfully coordinate time to book out resources that are shared among the family members. There is interaction between a family member who needs/wants to use a shared resource among the family, and the system returns information that helps the family member make decisions about their next steps. There are also interactions with other actors, such as the calendar service and another family member, that model a sequence of steps in the procedure to coordinate a time to use shared resources.

Use Case 3: Collaborate on Shared Media Playlists



Description

In this model, a family member starts by creating a new playlist. The system requests input for the name and description of the playlist, and options to paste a URL of media files or upload them from their local device. After inputting the name and description of the playlist, the family member picks whether they want to upload a media file, or paste a link to a media file hosted on an online audio or video platform. If they choose to upload a media file, the system displays a pop-up window specifying all the compatible files that can be uploaded. If they choose to paste a URL, the system sends a request to the online audio or video platform that hosts the desired media file. After the host platform approves the request, it sends all the data related to the requested media file to the system, which then displays the information received on the playlist. After the family member adds all their desired media files to the playlist, they proceed to select family members they would like to share the playlist with. The family member who creates the playlist can select other family members from the dropdown of family members provided by the system, or they can manually input the emails of the family member if they do not appear in the dropdown. The selected family members are notified of the playlist by the system's own notification system, or through email. After receiving the invite, the selected family members are able to view, play and edit the playlist.

Rationale

The core workflow in this model involves at least two family members, an external system (social media), and our system itself. For this reason, the use of swimlanes is important to demonstrate the flow of interactions between all of these instances, so we used an activity diagram to model them. In addition, there is also multiple decision making required across different swimlanes, so the activity diagram is a better choice than the data flow diagram.