Group 7

1. Description of the application you have developed.

Muvement is a digital choreography application that helps choreographers create and visualise their formations. Traditionally, choreographers use pen and paper to draw out their formations for a performance. However, this method is extremely messy, not edit-friendly and does not help them to visualise the transitions. With Muvement, choreographers can do everything online and even sync their transitions with music to visualise how the formations will come together for the entire performance. Finally, since Muvement is available on any device, this means that dancers can also access the formation choreography during dance practices.

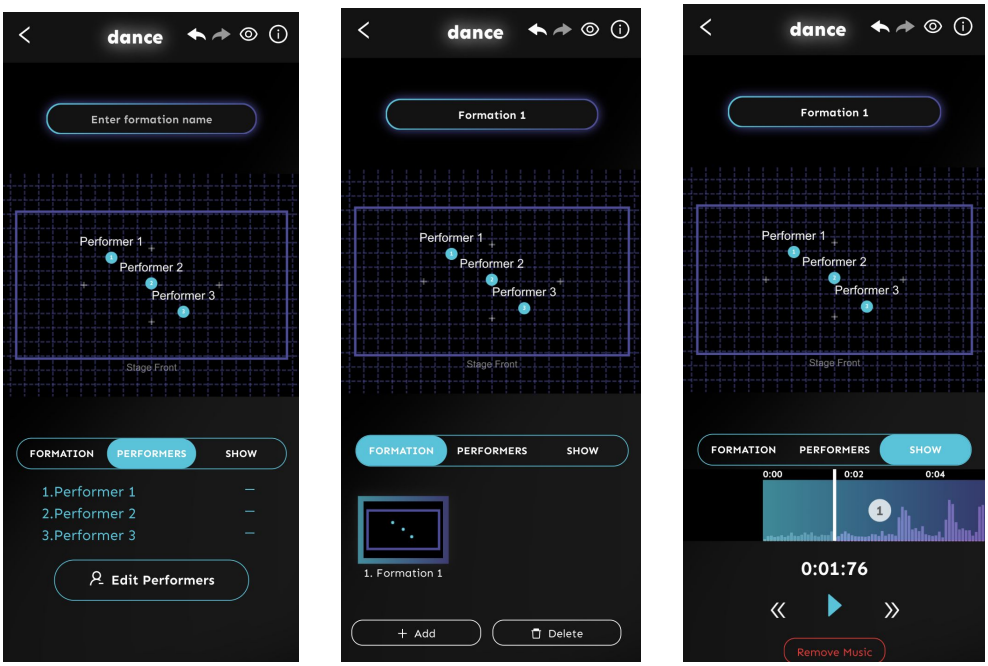


Figure 1: Formation creation screens with the ability to sync with music

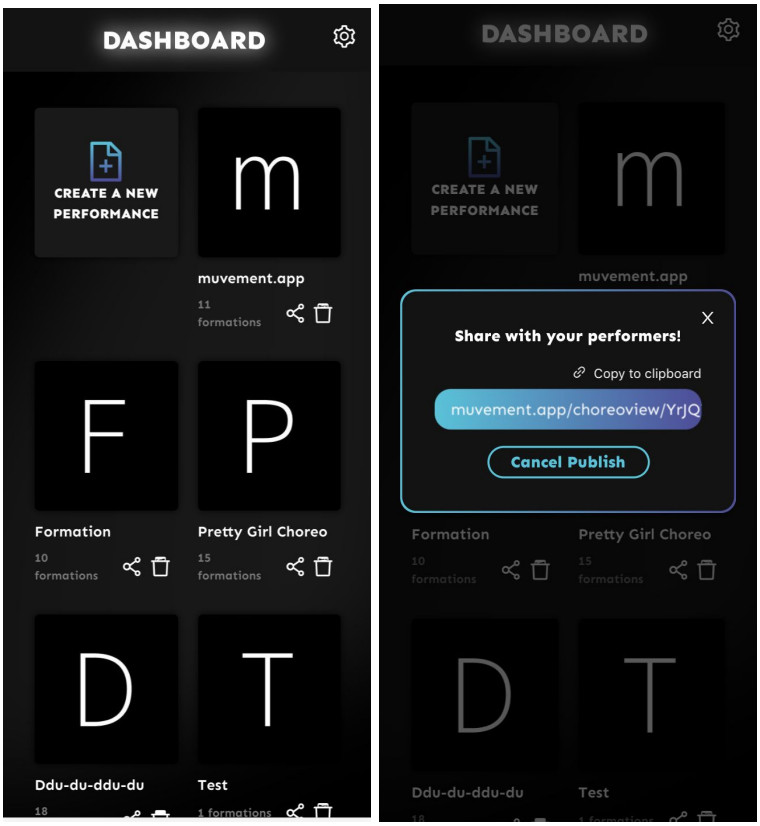


Figure 2: Dashboard to manage and store various choreographies

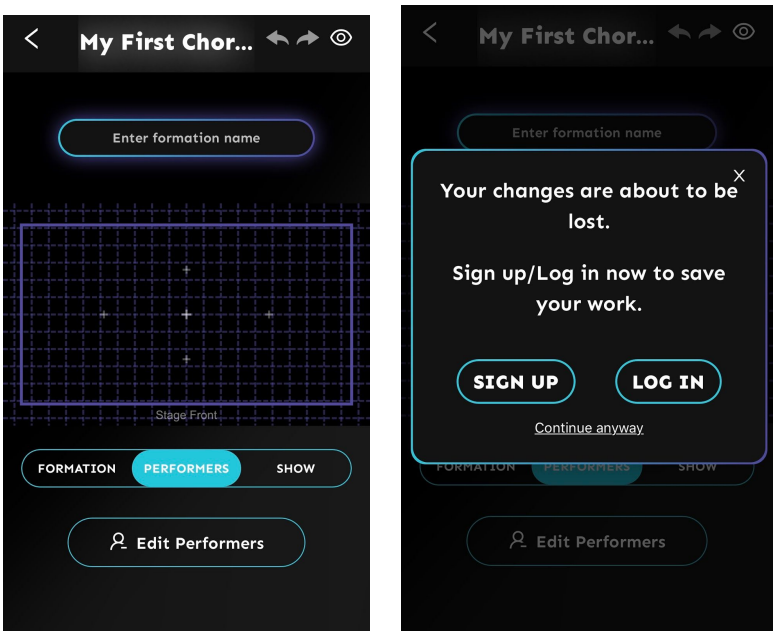


Figure 3: Trial Version for new users

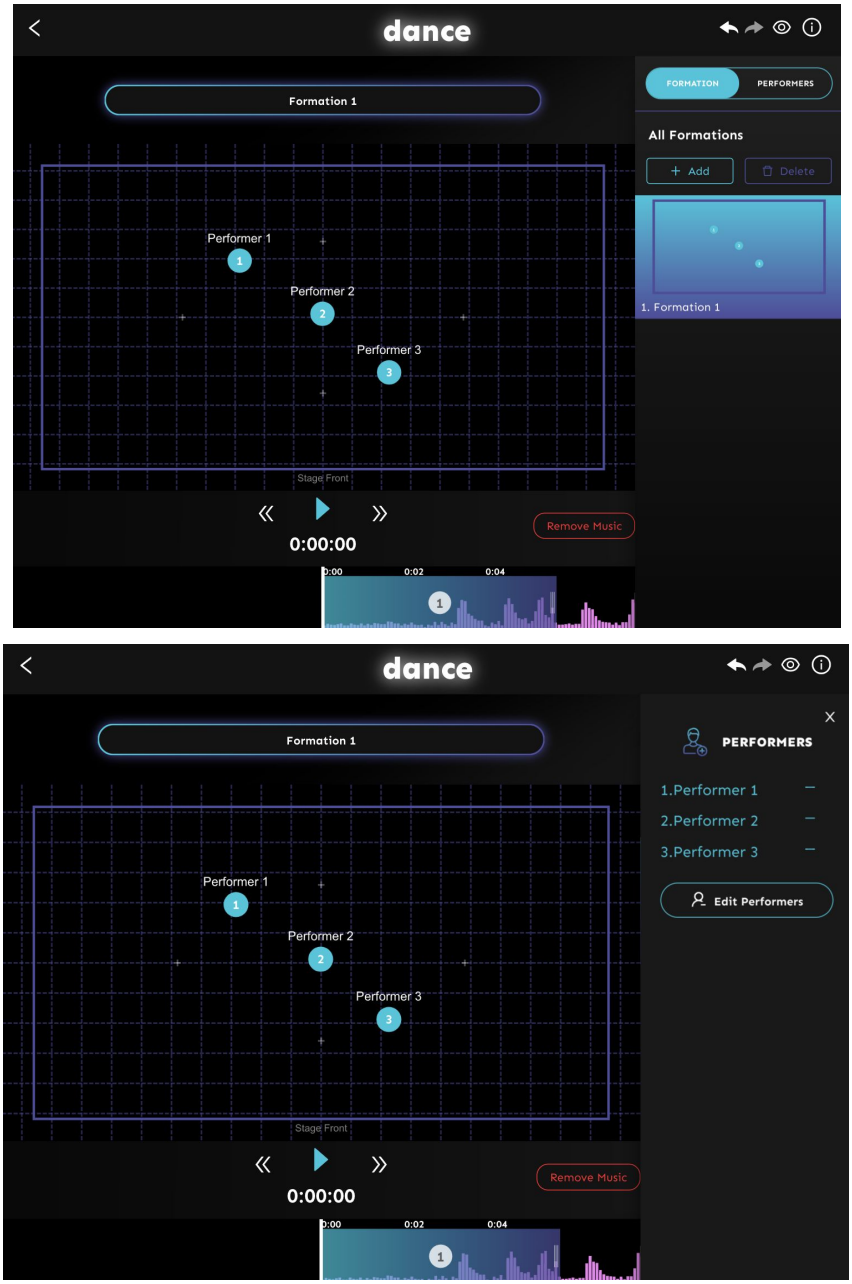


Figure 4: Alternative landscape mode user interface for tablet, laptop and desktop usage.

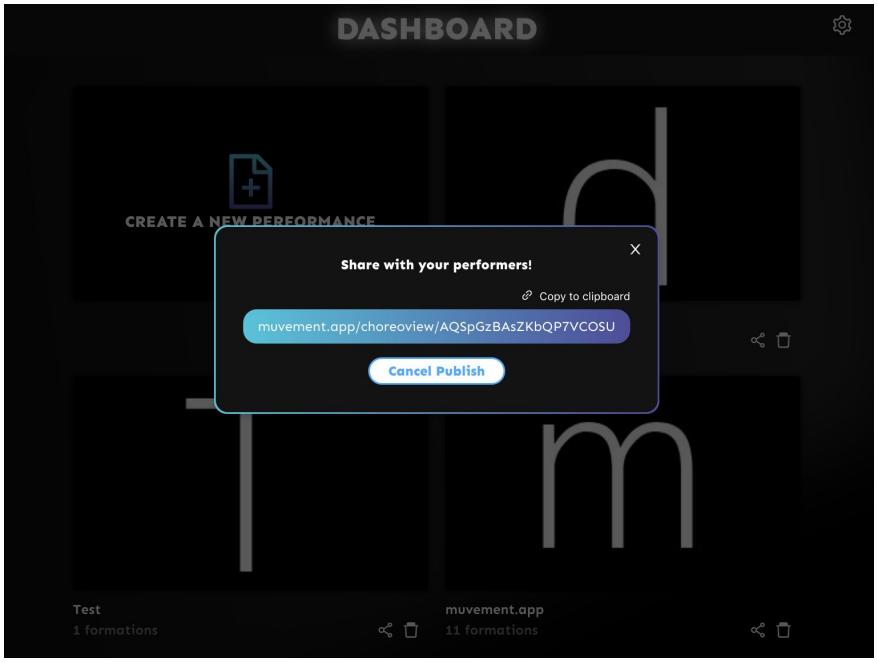


Figure 5: Share the choreography publicly

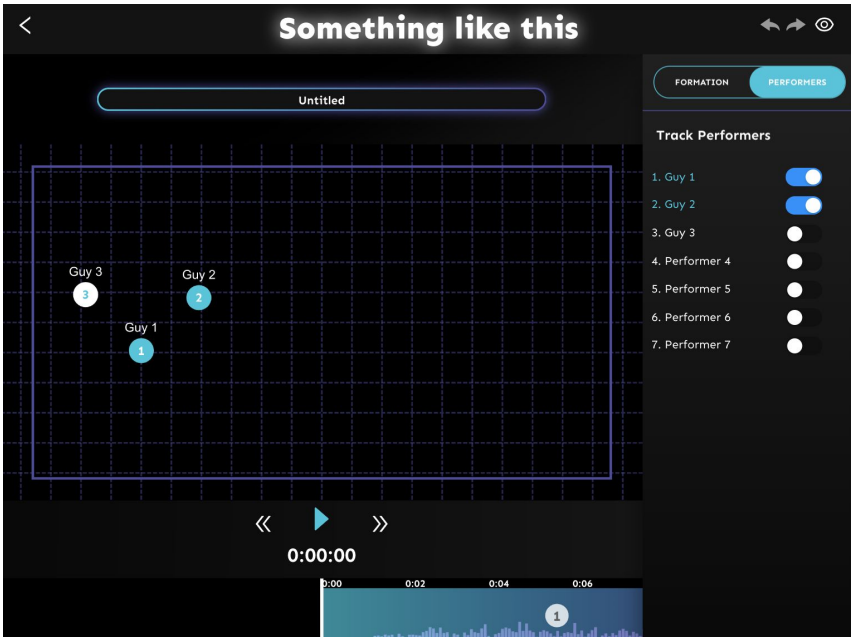


Figure 6: Dancer View of the choreography. Users can select specific dancers that they want to observe for the choreography. These selected dancers will be remain blue while the rest will become white dots.

2. **Are there any existing applications out there that are similar? What makes your application special?**

Currently, choreographers mostly use the pen and paper method. Some use powerpoint slides and Playbook.app. There is also StageKeep as a newer alternative to Playbook. However, their most basic plan is $9.99/month, which is limiting and expensive for most of our interviewees because they can only use it to choreograph one performance. StageKeep is also only available on Android. They would rather use a pen and paper method if they have to pay for basic features.

As for Playbook.app, the app itself is deprecated and is only available on versions iOS 10 and earlier. As such, non-iPhone users and recently updated iPhone users are unable to download and use this app. It was difficult to ask new users to try this app as they are unable to download it. This concern has serious implications too as it reveals the possibility of Playbook.Dance's extinction once all iPhones are forced to update. One of our interviewee actually has not updated her iOS version so that she can continue using this application. This also highlights how niche this app is, and how there exists an untapped market for such an app.

Through the interviewing some choreographers, we have distilled four features that the interviewees seem most concerned with.

1. **Editable formation:** Formation-making is a creative process that involves sketching broad pictures and also noting details as to where each dancer is positioned. Such a process requires a lot of revision and editing. A major complaint by those who use the paper method is that once a mistake is made, or when they want to change a minor detail, they are forced to redraw the entire formation from scratch.

2. **Importance of pathways and transitions:** The interviewees who regularly use Playbook.Dance appraise its ability to track the dancers' pathways and to observe animated transitions from one formation to another. On the practical side, an interviewee also mentioned how the app also shows how far each dancer has to travel to the next formation which is very helpful and this makes sures that dancers do not collide into one another during the item.

3. **Includes additional information:** Without additional information, formations are merely pictures without meaning. Dancers want to use

the space to write down the timing of the song that the formation is used, or to remind them of certain movements or names of each dancer.

4. **Neatness:** When dealing with large numbers of dancers, or intricate formations, drawings might get very complicated. This was noted by a choreographer who mentioned how the paper method was often messy due to its handwritten nature, and how the powerpoint method may be clearer, but due to the lack of a grid, lines are still not clear.

This is a breakdown of how each of the existing solutions compared to Muvement fits their needs:

	Paper	**Powerpoint**	**Playbook. Dance**	**Muvement**
Editability	Not edit-friendly.	Easily editable.	Easily editable.	Easily editable with added undo/redo, autosave, duplicate formation features to make edit easier.
Pathways and transitions	Not observable.	Not observable unless one uses the animation tool.	Clearly observable.	Clearly observable with the added ability to sync with music.
Extra Information	Has space for user to insert comments.	Can add textbox for comments. But is less “free” as paper	None.	Yes, name each dot which represent a dancer, toggle on and off the names, adjust the duration of each formation and transition with music.
Neatness and clarity	Depends on user. But tends to be messy due to handwritten nature.	Neater than paper method, but due to absence of grid, difficult to align.	Very neat and clear.	Very neat, clear and user friendly.

3. **Review of milestone and timeline for project (which ones did you hit, what ones did you miss?).**

All of our milestones were met and we kept to our planned timeline most of the time. The Undo/Redo feature was delayed during Phase 1 as we prioritised setting up Redux that set the data flow for the application and also served as the basis for the feature. Refining editing features was pushed to Phase 3 as we wanted to focus on pushing out key features on Week 2 of Phase 2. Below is the full timeline for our project.

<u>Phase 1 (8 — 15 Oct): Prototyping</u>

- Feature pipeline
    - Editable stage dimensions
    - Add/remove dot from frame
    - Move dots around the frame
    - Navigate between frames
    - Created choreographies and formation overview page
    - Undo/redo (shifted to Phase 2)
- Milestones:
    - 15 Oct: Progress report 1 submission

<u>Phase 2 (16 — 29 Oct): Development</u>

- Feature pipeline
    - Tagging dancers to dots
    - Week 1
        - Undo/redo (carried over from Phase 1)
        - Accounts for choreographers
        - Responsive design
        - Preview of formation
        - Refine editing features (feedback obtained from user tests, improvements in Phase 3)
    - Week 2
        - Add animations/transitions between frames
        - Shareable permalinks to a published dance
        - Dot-tracking in published dance
        - Sync frames with song
- Tasks
    - 23 Oct: Begin alpha user tests
- Milestones:
    - 29 Oct: Progress report 2 submission

Phase 3 (30 Oct — 5 Nov): Deployment

- Tasks
    - Create Landing Page
    - Refine editing features (carried over from Phase 2)
    - Sync frames with song
    - Beta-testing with more users
    - Prepare for in-class progress report
- Start preparing marketing materials
- Milestones:
    - 5 Nov: Publish beta prototype for security audit; In-class progress report

Phase 4 (6 — 18 Nov): Maintenance

- Tasks
    - Beta user tests
    - Refine marketing materials (including poster and video for STePS)
    - Execute marketing masterplan
    - Finish Final Report
- Milestones:
    - 14 Nov: Poster presentation
    - 18 Nov: Final report submission

4. **Individual contribution and roles. Acknowledgement of resources/help provided by external parties.**

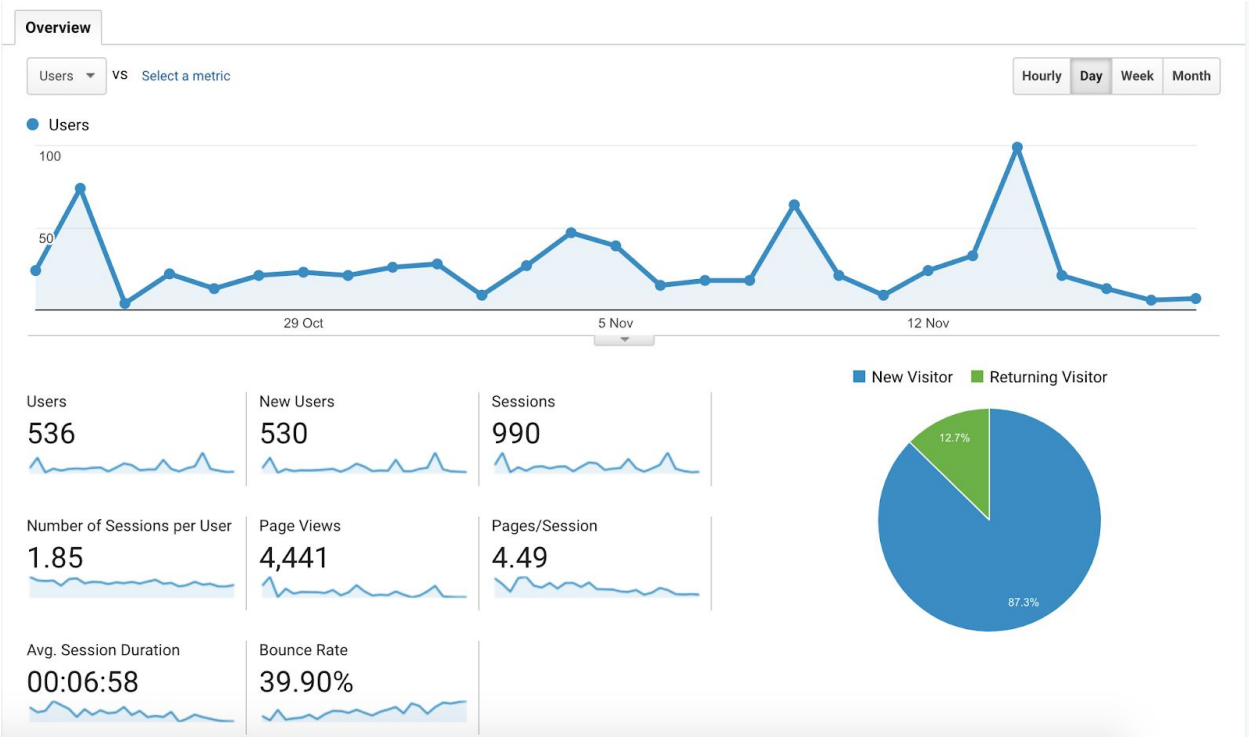
Name	**Roles and Contributions**
Tay Yu Jia	**Hustler** ● Frontend Developer (screen builder) ● Project Management ● Marketing (pitch)
Foo Guo Wei	**Hacker** ● Frontend Developer (canvas, animation, music)
Phua Tai Da John	**Hacker** ● Backend Engineer (data, authentication) ● Frontend Developer (screen builder, Firebase integration)
Wyin Kok	**Hipster** ● UI/UX Designer ● Frontend Developer (styling, design) ● Marketing (posters, videos)

5. **Application design (e.g. database schema, UML, etc, no code please).**

Our database/backend is handled completely by Firebase, and only handles data storage and authentication. Choreographies are stored as objects under Cloud Firestore, while music and choreography images are stored under Google Cloud Storage.

The frontend client was built with React and Konva (wrapper library around HTML5 Canvas).

6. **Report on the current number of users who have installed, active users, etc. Perhaps Google analytics data and screenshots (or similar analytics tools) to support your claims.**



User data from 23 Oct 2018 to 18 Nov 2018 (Since first alpha user test)

7. **Future plans and strategies.**

<u>Short-term development plan for December:</u>

- Add more editing features that are highly requested (i.e. group coloring, stage annotation, group editing)
- Get choreographers under NUS CAC+US event to use our app to plan their performances
- Reach out to professional choreographers or dance schools interested to promote our application

<u>Long-term development features:</u>

- Add advanced features to support choreo
    - Onion skinning
    - Collision detection

    - 3D view of stage to help choreographers visualise levels (e.g. standing and squatting positions)
    - Custom transitions
    - Formation templates for new choreographers
- Collaborative editing between choreographers
- Indicate different ways a dancer can move from one formation to another and suggest the most direct way
- Doodle space to roughly plan out stage blocking before formalising it

Possible business model to explore/validate:

- Monthly subscription-based model
- Free trials for new users
- Initial regular release of promo-codes for X-months free subscription to generate publicity / maintain interest / gain traction
- Discounted price for student choreographers

8. Insights gained from the project. What did you learn from doing the Final Project?

We faced more challenges during the ideation and the design stages so these are our lessons:

Ideation Lessons

- Be cautious of confirmation bias.
- Talk to users to find out who will really use this application and if not, iterate to entice them to try / use it
- Stupid ideas can be good ideas
- Be aware of what differentiates your product from existing competitors

Product Design Principles

- Principle of reversibility - When an action is irreversible, users should be prompted with a confirmation dialog / warning. Do not introduce unnecessary steps in the workflow for reversible actions.
- Principle of understanding users - Distil users' feedback and complaints into first principles and reconstruct into root problems. Sometimes users only see symptoms and not fundamental problems.

- Principle of getting/retaining users - Prioritise features that allows you to gain more users.
- Principle of minimum barriers - Users will only use a product if they feel it provides value to them. Allowing them to try out the app before signing up is key to getting them onboard.