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Proposal Title → Finishing started activities with GCompris

Motivation for Proposal → GCompris is an educational suite, that aims to teach the kids who are aged 2-10 year. It is not replacing the traditional approach, just making a tool that can make this traditional approach better.

It is ported from Gtk+ to Qt version to make it compatible with different devices like desktop, smartphones, tablets, etc with same code. Till now more than 100 activities are ported and some activities were started but not finished yet. My main goal will be completing some of those started activities. Working on GCompris project is interesting for me and it always adds something to my knowledge.

Project Goal →

By the end of *Season Of KDE* time period, I will be completing the port of railroad activity.

Railroad is a port to the Qt version of a brain boosting memory activity originally present in the Gtk+ version. It was started in the branch https://cgit.kde.org/gcompris.git/log/?h=sok_iamutkarshtiwari_railroad. The core implementation of the activity is complete, but improvements needs to be done on the design and more levels needs to be added.

Implementation Details →

For Railroad Activity -

- ❖ **Current state** - This activity is started in https://github.com/gcompris/GCompris-qt/tree/sok_iamutkarshitiwari_railroad branch. It consists of four levels with three sublevels each and hints for the correct answer.



❖ I'll be improving following things →

- The layout of the whole activity needs to be reworked. At present it is hard-coded to have fixed no. of wagons and locomotives in fixed no. of rows, which leads to *distortion of images* or we need horizontal scrolling of the wagons in a row to reach at correct image, which shouldn't be case.



I'll be creating a new grid based layout dependent on the dimensions of the activity window, which will fix the distortion of images and horizontal scrolling.

Wagons and locomotives will be selected via drag & drop to answer row(top row) or by keyboard navigation. For removing wagons and locomotives from answer row, drag & drop them to grid(not necessary to drop at exact position of that wagon) or use keyboard navigations.

- Adding sounds and audio effects which were in the Gtk+ version of activity, this includes train departure sound and the effects on selecting and dropping a wagon or locomotive. I'll be using audio files of the Gtk+ version.
- Implementing keyboard navigations for the selection of wagons and locomotives. It is a nice feature and will also help people with some motor issues to play the activity with ease. I'll be using *Highlight* property of grid as a feedback during keyboard navigation. Wagons and locomotives will be selected by either drag and drop or by keyboard keys(return and space key) and arrow keys to transverse the wagons.

Both answer row(top row) and wagons grid will be transversed by keyboard as a single element. Elements in answer row(top row) can be transversed(Left and right arrow) and will be removed on selection(Return, space or enter key).

- Setting memorizing time of wagons and locomotives for different levels according to difficulty of levels i.e. more

time for the levels with more wagons.

- Adding more levels and re-configuring current levels --
Each level will have three sublevels.

Level 1(easy) -

No. of wagons and locomotives to remember - 1

Time for memorization - 4 sec

Level 2(easy) -

No. of wagons and locomotives to remember - 2

Time for memorization - 6 sec

Level 3(Medium) -

No. of wagons and locomotives to remember - 3

Time for memorization - 7 sec

Level 4(Hard) -

No. of wagons and locomotives to remember - 4

Time for memorization - 8 sec

Level 5(Hard) -

No. of wagons and locomotives to remember - 5

Time for memorizations - 10 sec

- Present implementation of activity contains some bugs like →

If we click on our selected wagons and locomotives on top row, hint section is opened, which should not be case.

First row accepts both click and drag & drop selection of wagons while others are accepting only click and select.

I'll be solving these issues and others which will be found during completion of the activity.

❖ Tentative Timeline →

Keeping in mind about the time constraints([Official Timeline](#)), I'll be finalizing about the project and its implementations with the community and mentors from *31 Dec. to 3 January*.

From 4 January onwards -

(4th January - 15th January) →

- Creating new layout and work on user interface.
- Making code compatible to add/delete levels according to needs.
- Testing new layout with different devices and activity windows dimensions.
- Adding audio resources files for activity.
- Get reviews from the mentors on the UI and layout.

(16th January - 22nd January) →

- Improving UI and layout based on reviews.
- Fixing bugs(listed above and caused due to new layout).
[Current code is based on rows, grid based implementation will make some of present code not to work].
- Creating first two levels and checking if activity is working fine.
- Adding sounds and audio effects.

(23rd January - 4th February) →

- Getting reviews on first two levels and overall presentation of the activity.
- Making changes based on the reviews and discussion with mentors.
- Adding three levels(level 3-5).
- Implementing keyboard navigations.

(5th February - 9th February) →

- Get reviews from my mentors on the overall activity.
- Make necessary changes based on the reviews.
- Submit the code for final evaluation.

If I am ahead of timeline, I'll be completing documentation tasks listed on <https://phabricator.kde.org/project/view/144/> .

I'll be providing my weekly progress via blog. I do not have my college exams or any other internship during Sok period, so I can devote 6-7 hours per day, i.e. at least 40 hours per week.

About me →

I am a second year undergraduate engineering student from The LNM Institute of Information Technology, pursuing B.Tech in Computer Science and Engineering. I have been contributing to the GCompris for past few months, which helped me to get familiar with Qt and the overall GCompris codebase.

My contributions on GCompris so far →

1. Adding new activity “calendar”, which aims on teaching how to use a calendar.

<https://github.com/gcompris/GCompris-qt/commit/b9c0a8905c5688f57605e6d8784e31b25f854d79>

2. Adding animation in Score.qml as a feedback on win condition.

<https://github.com/gcompris/GCompris-qt/commit/dd39fdf730d8faf0a097cc3cd669c35087812681>

3. Refactor nine_men_morris to use ScoreItem.qml

<https://github.com/gcompris/GCompris-qt/commit/d1b5ac548eaec1ed80cc9ae5ef5eff0ce03d5913>

4. Fixed automatic level skipping on clicking Reload button

<https://github.com/gcompris/GCompris-qt/commit/f4a5e79992e78f8e7>

[af291d35e78168a453870ef](#)

5. Documented ScoreItem.qml

<https://github.com/gcompris/GCompris-qt/commit/1420e35ee356c01d95ccb6220c91d799f1c098c9>

6. *UNDER REVIEW* - Find the day activity, which aims at teaching duration calculation and finding correct date on calendar.

<https://github.com/gcompris/GCompris-qt/pull/202>

I am programming since last one and half year and I love to code. I actively participate in coding competitions and hackathons.

Given a chance to work on this project, I assure dedication of at least 40 hours per week to the work. I plan to actively maintain my code and help developing in GCompris even after my SoK time period is over.