

# **HBL Dashboard: A Real-Time, Always-Online, Customizable Dashboard to Enhance the Student HBL Experience**

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## **INTRODUCTION**

In view of the onset of Home-Based-Learning (HBL) among schools in Singapore, there has been a evident change in the learning practices of students and teachers alike. With most educational procedures now taking place online, there have been inconveniences in the daily learning routines of students as they struggle to adapt to the sudden change in the methods of learning. As such, we have decided to implement a One-Stop command center with all the necessary functions to increase the productivity of students as they shuttle between online portals and video conferences, in addition to being able to maintain social contact with their fellow classmates despite the lack of face to face interaction.

## **OBJECTIVES**

To enhance the student HBL experience, we first conduct a pilot test to learn about the various difficulties experienced by the general population during the trying HBL times. During said test, we came up with 3 main difficulties faced.

Firstly, many students faced difficulties, in identifying links to the various HBL platforms such as Google Meet links, Google Documents or Zoom Meetings. This is because the links are often only sent in

whatsapp groups and many students do not bother saving it in easy to access places, leading to later than expected attendance by students that have to spend a significant amount of time finding their links.

Secondly, many students found it difficult to keep track of time during HBL, This is because of the lack of standardised bell timings that would be accessible during standard physical schooling. This led to students forgetting to come back on time for lessons after lunch or students being unable to remind their teachers to release them ontime.

Thirdly, many students felt a lack of class bondedness and class spirit. This is likely due to the effects of decreased physical social interaction between members of the same class during HBL. As a result, class spirit and class identity takes a big hit, resulting in students feeling a lack of sense of belonging to their class.

HBL Dashboard aims to address these difficulties to enhance the HBL experience of students.

## FEATURES

The HBL Dashboard has a variety of features with the primary objectives of increasing the convenience of its users and also facilitating certain aspects of social interaction. These features are namely the Real-Time Timetable, Customisable Class Links, Class Icon and Class Notepad.

The Customisable Class Links provide a one-stop reference table for the various video conference links and class tools. As the links evidently vary across classes with different Subject Combinations and Tutors, each class has the option to customise their respective timetables through their CG Chairpersons. This feature is also password protected to prevent tampering of the links, along with short previews of the links to prevent accidental viewing of prohibited material, in the unlikely case that they are shared.

The Real-Time Timetable looks at providing students with a quick reference to their daily schedules, along with a straightforward and simple real-time red marker of their current lessons as they progress through the day (refer to Figure 1). This hopefully provides students with a visual reminder of what they should be doing at the current time, preventing issues of being late to class as well as providing them with a more tangible sense of time.

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Mo	Time HBL CT	JC2 H1-T-BC1	JC2 H1-L-MAN	JC2 H1-L-MAN	JC2 H1-L-MAN	JC2 H1-L-MAN	JC2 H1-L-MAN	JC2 H1-L-MAN	JC2 H1-L-MAN	JC2 H1-L-MAN	JC2 H1-L-MAN	JC2 H1-L-MAN	JC2 H1-L-MAN	JC2 H1-L-MAN	JC2 H1-L-MAN	JC2 H1-L-MAN	JC2 H1-L-MAN	JC2 H1-L-MAN	JC2 H1-L-MAN	JC2 H1-L-MAN	JC2 H1-L-MAN	JC2 H1-L-MAN	JC2 H1-L-MAN	JC2 H1-L-MAN	JC2 H1-L-MAN	JC2 H1-L-MAN	
		JC2 H1-T-BC2	JC2 H1-T-BC2	JC2 H1-T-BC2	JC2 H1-T-BC2	JC2 H1-T-BC2	JC2 H1-T-BC2	JC2 H1-T-BC2	JC2 H1-T-BC2	JC2 H1-T-BC2	JC2 H1-T-BC2	JC2 H1-T-BC2	JC2 H1-T-BC2	JC2 H1-T-BC2	JC2 H1-T-BC2	JC2 H1-T-BC2	JC2 H1-T-BC2	JC2 H1-T-BC2	JC2 H1-T-BC2	JC2 H1-T-BC2	JC2 H1-T-BC2	JC2 H1-T-BC2	JC2 H1-T-BC2	JC2 H1-T-BC2	JC2 H1-T-BC2	JC2 H1-T-BC2	JC2 H1-T-BC2
Tu	Time HBL CT	JC2 H1-T-CA2	JC2 H1-T-CA2	JC2 H1-T-CA2	JC2 H1-T-CA2	JC2 H1-T-CA2	JC2 H1-T-CA2	JC2 H1-T-CA2	JC2 H1-T-CA2	JC2 H1-T-CA2	JC2 H1-T-CA2	JC2 H1-T-CA2	JC2 H1-T-CA2	JC2 H1-T-CA2	JC2 H1-T-CA2	JC2 H1-T-CA2	JC2 H1-T-CA2	JC2 H1-T-CA2	JC2 H1-T-CA2	JC2 H1-T-CA2	JC2 H1-T-CA2	JC2 H1-T-CA2	JC2 H1-T-CA2	JC2 H1-T-CA2	JC2 H1-T-CA2	JC2 H1-T-CA2	JC2 H1-T-CA2
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We	Time HBL CT	JC2 H1-T-PA2	JC2 H1-T-PA2	JC2 H1-T-PA2	JC2 H1-T-PA2	JC2 H1-T-PA2	JC2 H1-T-PA2	JC2 H1-T-PA2	JC2 H1-T-PA2	JC2 H1-T-PA2	JC2 H1-T-PA2	JC2 H1-T-PA2	JC2 H1-T-PA2	JC2 H1-T-PA2	JC2 H1-T-PA2	JC2 H1-T-PA2	JC2 H1-T-PA2	JC2 H1-T-PA2	JC2 H1-T-PA2	JC2 H1-T-PA2	JC2 H1-T-PA2	JC2 H1-T-PA2	JC2 H1-T-PA2	JC2 H1-T-PA2	JC2 H1-T-PA2	JC2 H1-T-PA2	JC2 H1-T-PA2
		JC2 H1-T-PA1	JC2 H1-T-PA1	JC2 H1-T-PA1	JC2 H1-T-PA1	JC2 H1-T-PA1	JC2 H1-T-PA1	JC2 H1-T-PA1	JC2 H1-T-PA1	JC2 H1-T-PA1	JC2 H1-T-PA1	JC2 H1-T-PA1	JC2 H1-T-PA1	JC2 H1-T-PA1	JC2 H1-T-PA1	JC2 H1-T-PA1	JC2 H1-T-PA1	JC2 H1-T-PA1	JC2 H1-T-PA1	JC2 H1-T-PA1	JC2 H1-T-PA1	JC2 H1-T-PA1	JC2 H1-T-PA1	JC2 H1-T-PA1	JC2 H1-T-PA1	JC2 H1-T-PA1	JC2 H1-T-PA1
Th	Time HBL CT	JC2 H1-L-GA1	JC2 H1-L-GA1	JC2 H1-L-GA1	JC2 H1-L-GA1	JC2 H1-L-GA1	JC2 H1-L-GA1	JC2 H1-L-GA1	JC2 H1-L-GA1	JC2 H1-L-GA1	JC2 H1-L-GA1	JC2 H1-L-GA1	JC2 H1-L-GA1	JC2 H1-L-GA1	JC2 H1-L-GA1	JC2 H1-L-GA1	JC2 H1-L-GA1	JC2 H1-L-GA1	JC2 H1-L-GA1	JC2 H1-L-GA1	JC2 H1-L-GA1	JC2 H1-L-GA1	JC2 H1-L-GA1	JC2 H1-L-GA1	JC2 H1-L-GA1	JC2 H1-L-GA1	JC2 H1-L-GA1
		JC2 H1-T-CA2	JC2 H1-T-CA2	JC2 H1-T-CA2	JC2 H1-T-CA2	JC2 H1-T-CA2	JC2 H1-T-CA2	JC2 H1-T-CA2	JC2 H1-T-CA2	JC2 H1-T-CA2	JC2 H1-T-CA2	JC2 H1-T-CA2	JC2 H1-T-CA2	JC2 H1-T-CA2	JC2 H1-T-CA2	JC2 H1-T-CA2	JC2 H1-T-CA2	JC2 H1-T-CA2	JC2 H1-T-CA2	JC2 H1-T-CA2	JC2 H1-T-CA2	JC2 H1-T-CA2	JC2 H1-T-CA2	JC2 H1-T-CA2	JC2 H1-T-CA2	JC2 H1-T-CA2	JC2 H1-T-CA2
Fr	Time HBL CT	JC2 H1-L-BC2	JC2 H1-L-BC2	JC2 H1-L-BC2	JC2 H1-L-BC2	JC2 H1-L-BC2	JC2 H1-L-BC2	JC2 H1-L-BC2	JC2 H1-L-BC2	JC2 H1-L-BC2	JC2 H1-L-BC2	JC2 H1-L-BC2	JC2 H1-L-BC2	JC2 H1-L-BC2	JC2 H1-L-BC2	JC2 H1-L-BC2	JC2 H1-L-BC2	JC2 H1-L-BC2	JC2 H1-L-BC2	JC2 H1-L-BC2	JC2 H1-L-BC2	JC2 H1-L-BC2	JC2 H1-L-BC2	JC2 H1-L-BC2	JC2 H1-L-BC2	JC2 H1-L-BC2	JC2 H1-L-BC2
		JC2 H1-T-CA1	JC2 H1-T-CA1	JC2 H1-T-CA1	JC2 H1-T-CA1	JC2 H1-T-CA1	JC2 H1-T-CA1	JC2 H1-T-CA1	JC2 H1-T-CA1	JC2 H1-T-CA1	JC2 H1-T-CA1	JC2 H1-T-CA1	JC2 H1-T-CA1	JC2 H1-T-CA1	JC2 H1-T-CA1	JC2 H1-T-CA1	JC2 H1-T-CA1	JC2 H1-T-CA1	JC2 H1-T-CA1	JC2 H1-T-CA1	JC2 H1-T-CA1	JC2 H1-T-CA1	JC2 H1-T-CA1	JC2 H1-T-CA1	JC2 H1-T-CA1	JC2 H1-T-CA1	JC2 H1-T-CA1

Figure 1: Image of Real-Time Timetable

Class Icon and Class Notepad are aimed at helping to improve class spirit and foster a class identity.

With Class Icon, classes can create their own class icon which will be displayed on the class dashboard. The icon just needs to be a raster graphic image that is preferably square in shape. This means that creating a class icon is accessible to many people, whether it be just creating something fast in Microsoft Paint, or going further and taking a screenshot of a 3D-modelled icon, the possibilities are virtually endless.

The Class Notepad serves both a practical purpose of allowing classes to share and store important class related information such as test dates, homework, etc as well as a class spirit boosting purpose where students can leave encouraging messages or even come up with class quotes.

## HOW TO USE

A common concern about new online platforms is the difficulty associated with their usage, especially so given how HBL Dashboards are meant to be used by the general population, of which not all are tech-savvy.

Fortunately, HBL Dashboards is relatively straightforward and easy to use. To access a class's dashboard, simply head to "https://tinyurl.com/tjcdashb" and scroll to find your class. (Refer to Figure 2)

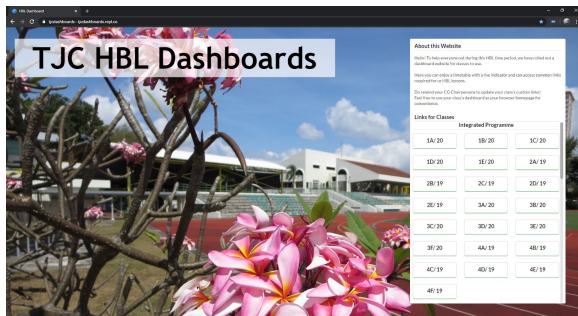


Figure 2: Index page of site with classes on the scrollbar bar on the right

Once found, the student can bookmark their dashboard or make it their browser homepage so they can easily access it. From there, they are able to access all features mentioned above and navigate the page in an intuitive manner. (Refer to Figure 3 and 4)

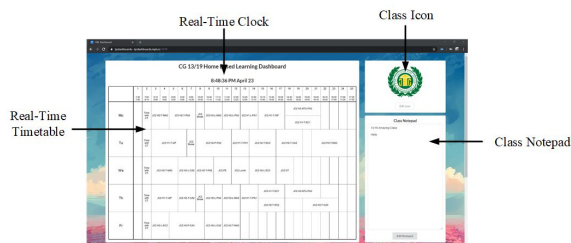


Figure 3: Sample Dashboard (Top of page)

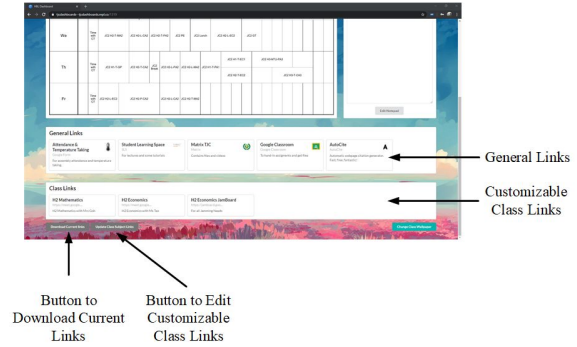


Figure 4: Sample Dashboard (Bottom of page)

The Real-Time Timetable functions automatically but it is up to website administrators to change the timetable images when new timetables are released.

For customising the class links, to ensure that the feature is not abused, users will be required to submit a class-specific password when attempting to alter links. These passwords will be distributed to class chairpersons who will be the ones to manage the class custom links. Updating the links is done simply by filling up an online webform. (Refer to Figure 5)

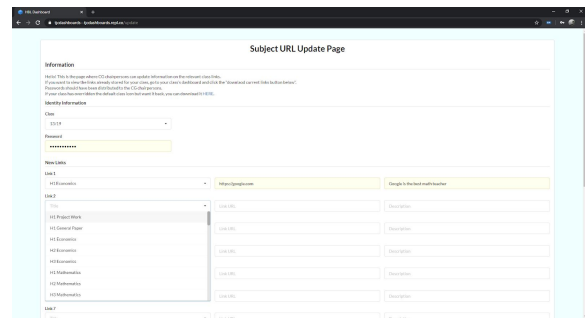


Figure 5: Form to Update Customisable Class Links

## METHODOLOGY

This webpage is built in Python 3 with the use of Jinja 2, a template engine to produce dynamic web pages. Hosting is then done on Repl.it, a free hosting service.

The Customisable Class Links are stored as comma separated value (CSV) files on the web server. Class Notepad contents are stored similarly in text files. Using simple file storage rather than a full SQL database is done to help reduce the complexity of the application, particularly due to the small amount of data that has to be stored.

## EXTENSIONS

An area of improvement would be the improvement of the Class Link Update system to add links to existing ones. Currently, with each update request, the entire repository of existing links is overwritten with the new links, which may prove a hassle if people make mistakes and have to update the links multiple times. This was not done initially due to the inconvenience associated with writing and reading the link data to an external storage location such as a .csv or .txt file.

Additionally, another improvement would be to allow users to upload their own custom timetables as certain users choose to edit their timetables to remove obsolete lessons or to add ornamentation.

## CONCLUSION

In conclusion, HBL-Dashboard has full functionality and looks to provide great convenience to users should they choose to

use it, as the current pickup rate is currently unknown, and only time will tell.

## ACKNOWLEDGEMENTS

We would like to thank Mr Lim Chuan Li for his support under the Temasek Development Programme to carry out this community service project to aid fellow TJCians in these trying times, and we sincerely hope this will be a useful tool for all students to use.

All images used are from open sources and have been properly acknowledged below.

## LIST OF IMAGE REFERENCES

Backgrounds from Main Page: TJC Matrix Wallpapers:

1. <https://www.scitecheuropa.eu/wp-content/uploads/2020/01/Mount-Everest-696x392.jpg>
2. <https://c4.wallpaperflare.com/wallpaper/463/41/105/artistic-vaporwave-otr-un-retrowave-wallpaper-preview.jpg>
3. <https://www.google.com/url?sa=i&url=https%3A%2F%2Fwww.scitecheuropa.eu%2Fplant-life-around-mount-everest-is-expanding%2F99144%2F&psig=AOvVaw3ereZlZIA3PKaamiw3obml&ust=1590328664496000&source=images&cd=vfe&ved=0CA0QjhxqFwoTCJiFluSyukCFQAAAAAdAAAAABAD>
4. <http://www.kaimalo.com/img/ca6c5d5dbb8c4d7deebaf9c.html>
5. <https://krot.info/fony/24487-svetlye-anime-fony-36-foto.html>