

User Experience Research Report: Heuristic Evaluation

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IRCTC Website

Introduction :

Indian Railway Catering and Tourism Corporation (IRCTC) is a fully owned subsidiary of Indian Railways that provides ticketing, catering, and tourism services to the Indian Railways. It was initially wholly owned by the Government of India and operated under the administrative control of the Indian Ministry of Railways, but has been listed on the National Stock Exchange since 2019, with the Government continuing to hold majority ownership. It is one of the Miniratna companies of the Central Indian government. Prior to its inception, Indian railway passengers had little options for quality food while travelling. Passengers have to get off from trains at stations and buy sub-standard and unhygienic food available. The short halt at stations and the sudden surge in crowd at the stalls added to the travelers' panic. After the advent of IRCTC, pantry cars were introduced inside long or medium distance trains which catered to passengers by serving freshly cooked quality food, thus revolutionizing train travel in India. It pioneered internet-based rail ticket booking through its website, as well as from the mobile phones via WiFi, GPRS or SMS. It also provides SMS facility to check PNR status and Live Train Status as well. In addition to e-tickets, Indian Railways Catering and Tourism Corporation also offers I-tickets that are basically like regular tickets except that they are booked online and delivered by post. The tickets PNR status is also made available. Commuters on the suburban rail can also book season tickets through the website. It has also launched a loyalty program called Shubh Yatra for frequent travelers. Through this program, passengers can avail discounts on all tickets booked round the year by paying an upfront annual fee.

Url: <https://www.irctc.co.in/nget/train-search>

Heuristics Used:

For this evaluation, I used the heuristics developed by Jakob Nielsen (1994) in the chapter “Heuristic Evaluation” in Usability Inspection Methods.

1. **FEEDBACK:** Visibility of system status
2. **METAPHOR:** Match between system and the real world
3. **NAVIGATION:** User control and freedom
4. **CONSISTENCY:** Consistency and standards
5. **PREVENTION:** Error prevention
6. **MEMORY:** Recognition rather than recall
7. **EFFICIENCY:** Flexibility and efficiency of use
8. **DESIGN:** Aesthetic and minimalist design
9. **RECOVERY:** Help users recognize, diagnose, and recover from errors
10. **HELP:** Help and documentation

Individual Heuristic Evaluations:

Severity was judged based on a five point rating scale taken from Nielsen’s “Heuristic Evaluation” chapter, Table 2.3 (1994):

1. Cosmetic problem only – need not be fixed unless extra time is available on project
2. Minor usability problem – fixing this should be given low priority
3. Major usability problem – important to fix, so should be given high priority
4. Usability catastrophe – imperative to fix this before product can be released

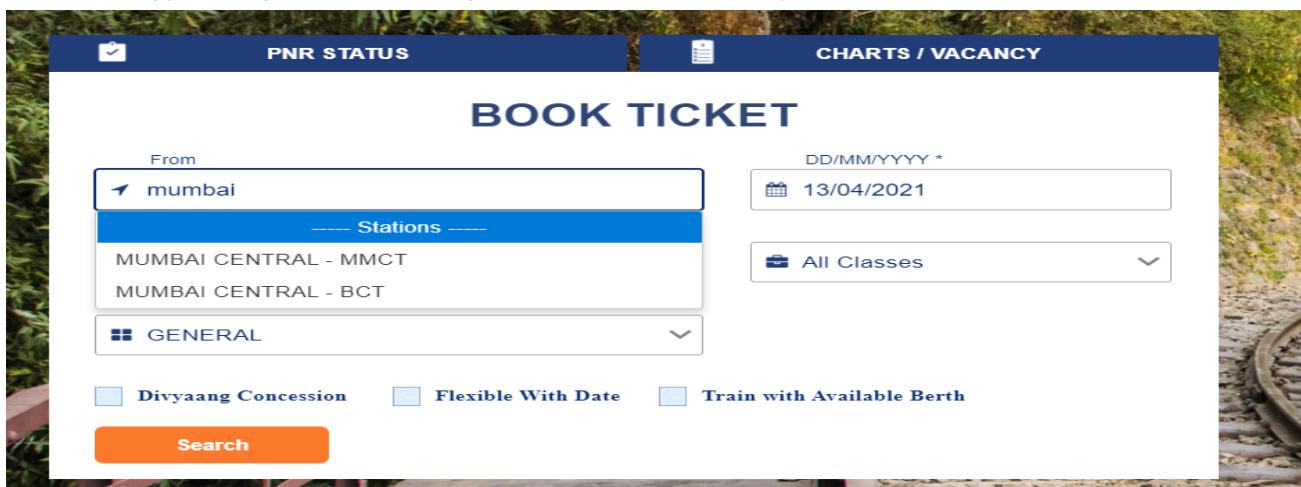
Findings and Recommendations:

Finding 1: The abbreviations used for station names cannot be understood by general users. <https://www.irctc.co.in/ndt/train-search>

Severity: 4/4

Heuristic Violated: Match between system and the real world

Description: Mumbai Central station with two different abbreviations can create a confusion for a user who is unknown to the place. It is very critical to inform the user the correct station otherwise the user might end up booking tickets from an altogether different place. This creates a monetary loss as well as for the user. The terminology being different might hinder their ability to relate to and understand it.



Recommendation: Full Forms of the station name should be provided in the dropdown itself or else a 'know more' option can be included which mentions the station name and the abbreviation assigned for it.

Station Name	Station Code	State	Zone
Mumbai Andheri	ADH	MH	WR
Mumbai Bandra Terminus	BDTS	MH	WR
Mumbai Borivali	BVI	MH	WR
Mumbai Central	BCT	MH	WR

The screenshot shows a search interface for Mumbai. A search bar at the top contains the text "mumbai". Below it, a section titled "SEARCH RESULTS" lists five station suggestions, each with its name, location, and a three-letter code:

- Mumbai, Maharashtra Kalyan Junction KYN
- Mumbai, Maharashtra Mumbai Dadar Central Railway Station DR
- Mumbai, Maharashtra Mumbai Cst Railway Station CSTM
- Mumbai, Maharashtra Mumbai Borivali Railway Station BVI
- Mumbai, Maharashtra LTT

Finding 2: No error message in case of wrong station names.

<https://www.irctc.co.in/nget/train-search>

Severity: 4/4

Heuristic Violated: Error prevention

Description: On providing incorrect station names for to and from and clicking on the search button does not give the user an error notification. There is no change in the page and the user may get confused or frustrated on seeing that he cannot search for the desired train. It also does not mention that we need to give specifically station names and not city names.

PNR STATUS CHARTS / VACANCY

BOOK TICKET

From: mumbai

To: NEW DELHI - NDLS

Date: DD/MM/YYYY * 13/04/2021

Class: All Classes

Category: GENERAL

Search

All passengers travelling to Odisha, from anywhere by train, must have an RT-PCR negative test report of maximum 72 hours before the start of journey or a 2nd dose vaccination certificate.

BOOK TICKET

From:

To:

Recommendation: It is recommended to provide an instant notification to the user if he has given the input wrong. Also the placeholder should be 'station from' And 'to station'.

Label

Invalid Input



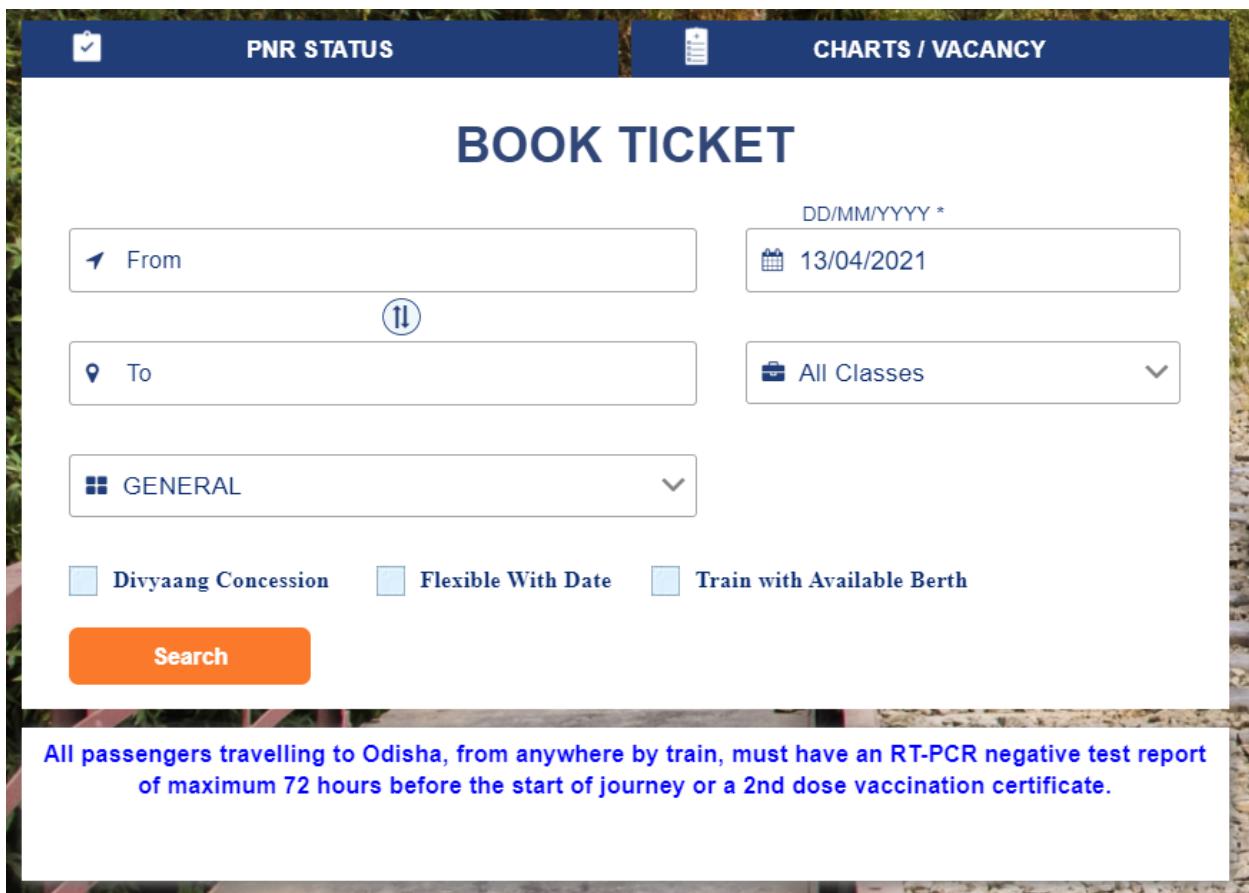
Error message with clear instruction

Finding 3: An important instruction is presented in blue color, it may go unnoticed by many users. <https://www.irctc.co.in/nget/train-search>

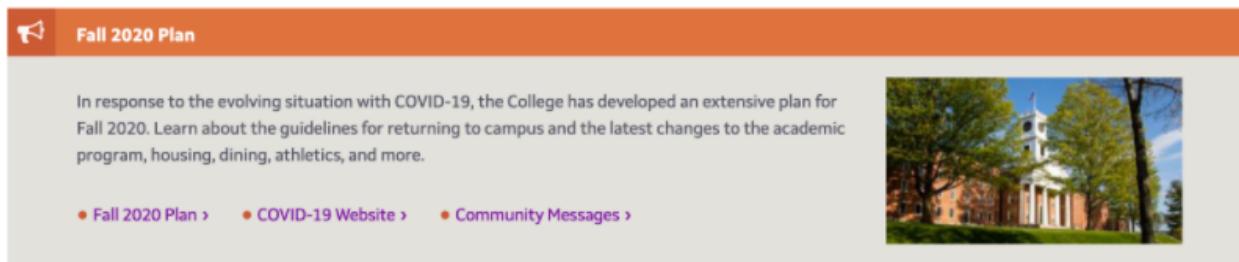
Severity: 4/4

Heuristic Violated: Consistency and standards

Description: Important instructions are placed below the search section. This may result in users ignoring it as advertisements. The small font and blue color also does not make it eye-catching which is very bad in case the notice is very important.



Recommendation: Red color can be used to grab user attention for important instructions and notices. It should be placed above the search section to ensure that it is the first thing that users read.

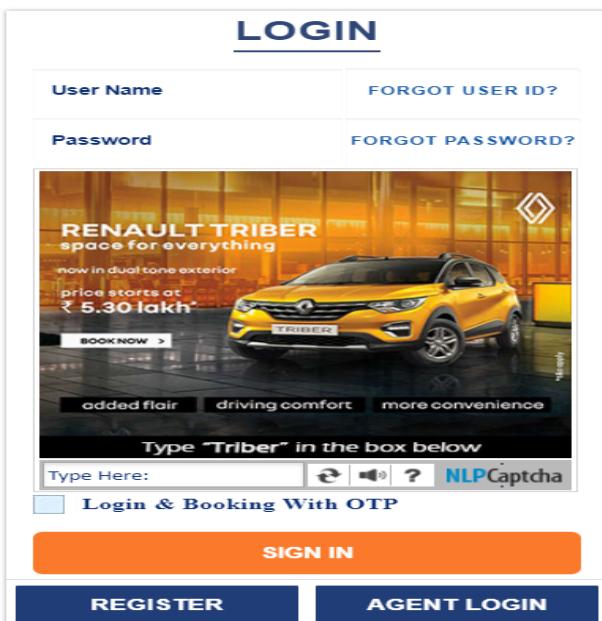


Finding 4: The captcha merges with the advertisement, making it difficult to find the text. <https://www.irctc.co.in/nget/train-search>

Severity: 4/4

Heuristic Violated: Aesthetic and minimalist design

Description: The advertisement is placed right in the middle of the agent login section and creates confusion to the users. The captcha which has the black background merges with the advertisement. The user has to search thoroughly to find the captcha and one may think that the text is a part of the advertisement. The extra unit of information in an interface competes with the relevant units of information and diminishes their relative visibility.



Recommendation:

There is no need to add an advertisement in the middle of such an important section. The captcha should be placed in a bigger box and white background so that the text is instantly visible to the user.



Finding 5: The error alert is wrongly placed and goes unnoticed.
<https://www.irctc.co.in/nget/booking/train-list>

Severity: 3/4

Heuristic Violated: Help users recognize, diagnose, and recover from errors

Description: Error message is not quite obvious and also not preferred location. The error occurred as class was not selected and the book now button was clicked. The user would not notice it for a good amount of time as there was no major animation to grab the user's attention.

EXP 8 UED LAB

11 Results for MUMBAI CENTRAL → NEW DELHI | Tue, 13 Apr 2021 For Quota | General

Sort By | Duration Show Available Trains < Previous Day Next Day >

NDLS RAJ SPL (02951) Runs On: M T W T F S S Train Schedule

17:00 | MUMBAI CENTRAL | Tue, 13 Apr ————— 15:50 ————— 08:50 | NEW DELHI | Wed, 14 Apr

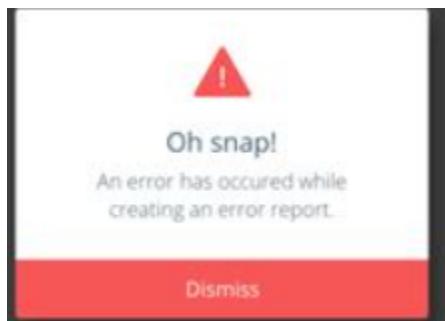
AC 3 Tier (3A) RAC 15 ₹ 2385 ⓘ	AC 2 Tier (2A) AVAILABLE-0046 ₹ 2850 ⓘ	AC First Class (1A) WL1 ₹ 4495 ⓘ 94%
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Dynamic Pricing is applicable in this train. Fare may increase at the time of booking.

Updated 5 Minutes and 27 Seconds ago C

Book Now OTHER DATES

Recommendation: The error occurred as the class was not selected but the book now button was clicked. Hence, the error should be shown with a popup or alert near the class selection .



Finding 6: The maroon and green color is associated on the left panel to special train garib rath respectively. However, maroon color is used for both when on the contrary both are mentioned alongside the train name.

<https://www.irctc.co.in/nget/booking/train-list>

Severity: 3/4

Heuristic Violated: Consistency and standards

Description: The maroon color signifies Special train. However, the trains have a mark on the upper left of maroon color. Garib rath and special is also written alongside the train names. This is used for both garib rath and special trains. The

user may also think that it is a part of a design in case he does not see the left panel where the colors are associated. Hence, this can create a lot of confusion and the user may end up buying tickets for incorrect train type.

Refine Results [Reset Filters](#)

JOURNEY CLASS [Select All](#)

- AC First Class (1A) AC 2 Tier (2A)
- Second Sitting (2S) AC 3 Tier (3A)
- AC Chair car (CC) Sleeper (SL)

TRAIN TYPE [Select All](#)

- GARIB RATH
- SPECIAL

DEPARTURE TIME [Select All](#)

- 00:00 - 06:00
- 06:00 - 12:00

TO STATIONS [Select All](#)

- DELHI S ROHILLA
- NEW DELHI
- H NIZAMUDDIN



11 Results for MUMBAI CENTRAL ➔

[Sort By | Duration](#) [Show Available Trains](#)

NDLS RAJ SPL (02951)

17:00 | MUMBAI CENTRAL | Tue, 13 Apr

<div style="border: 1px solid #ccc; padding: 10px; text-align: center;"> AC 3 Tier (3A) RAC 15 ₹ 2385 <small>₹ 2385</small> </div>	<div style="border: 1px solid #ccc; padding: 10px; text-align: center;"> AC 2 Tier (2A) AVAILABLE-0 ₹ 2850 <small>₹ 2850</small> </div>
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Dynamic Pricing is applicable in this train.

[Book Now](#) [OTHER DATES](#)

NZM RAJDHANI SPL (02953) Runs On: M T W

17:10 | MUMBAI CENTRAL | Tue, 13 Apr 16:33 —

<div style="border: 1px solid #ccc; padding: 10px; text-align: center;"> AC 3 Tier (3A) RAC 55 ₹ 2210 <small>₹ 2210</small> </div>	<div style="border: 1px solid #ccc; padding: 10px; text-align: center;"> AC 2 Tier (2A) AVAILABLE-0045 ₹ 2645 <small>₹ 2645</small> </div>	<div style="border: 1px solid #ccc; padding: 10px; text-align: center;"> AC First Class (1A) WL1 <small>WL1</small> 94% <small>94%</small> ₹ 4495 <small>₹ 4495</small> </div>
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[Book Now](#) [OTHER DATES](#)

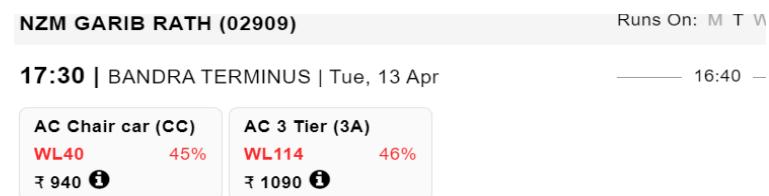
NZM GARIB RATH (02909) Runs On: M T W

17:30 | BANDRA TERMINUS | Tue, 13 Apr 16:40 —

<div style="border: 1px solid #ccc; padding: 10px; text-align: center;"> AC Chair car (CC) WL40 <small>WL40</small> 45% <small>45%</small> ₹ 940 <small>₹ 940</small> </div>	<div style="border: 1px solid #ccc; padding: 10px; text-align: center;"> AC 3 Tier (3A) WL114 <small>WL114</small> 46% <small>46%</small> ₹ 1090 <small>₹ 1090</small> </div>
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Recommendation: It is recommended to remove the purple tag from the corner as there is no need to associate a color.

EXP 8 UED LAB



Finding 7: The journey duration is in a similar format to that of the time convention used for arrival and departure.

<https://www.irctc.co.in/nget/booking/train-list>

Severity: 3/4

Heuristic Violated: Consistency and standards

Description: The user can get confused between the journey duration and the time schedules as both are written in the same format. The user might wonder whether the journey duration actually signifies a halt time or time to reach a particular station in between. This might create unwanted confusion and lead to user not booking the train.



Recommendation: The journey duration should have a suffix as ‘hours’ or a symbol or text signifying its purpose can be used.

5:00 AM, Wed

Adrsh Ngr Delhi (ANDI)

8 hrs 45 mins

[View Route](#)

1:45 PM, Wed

Kanpur Central (CNB)

Finding 8: The Ask Disha option on the navbar does not work.
<https://www.irctc.co.in/nget/train-search>

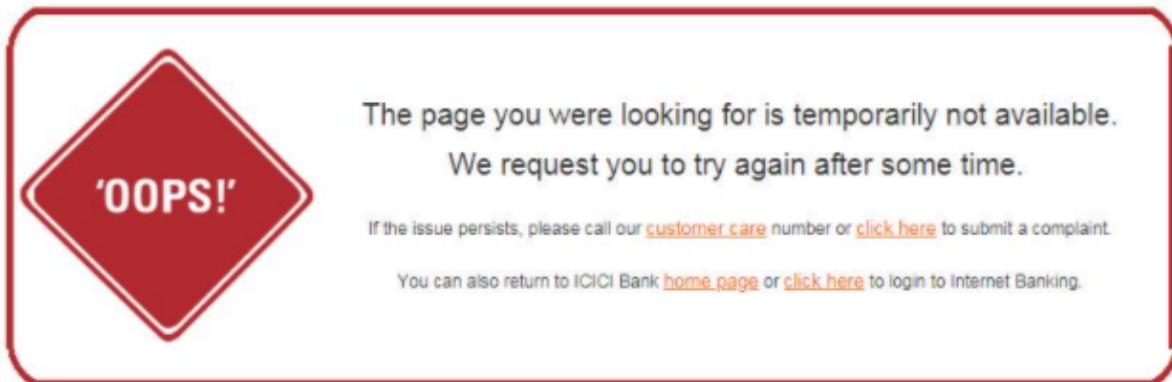
Severity: 3/4

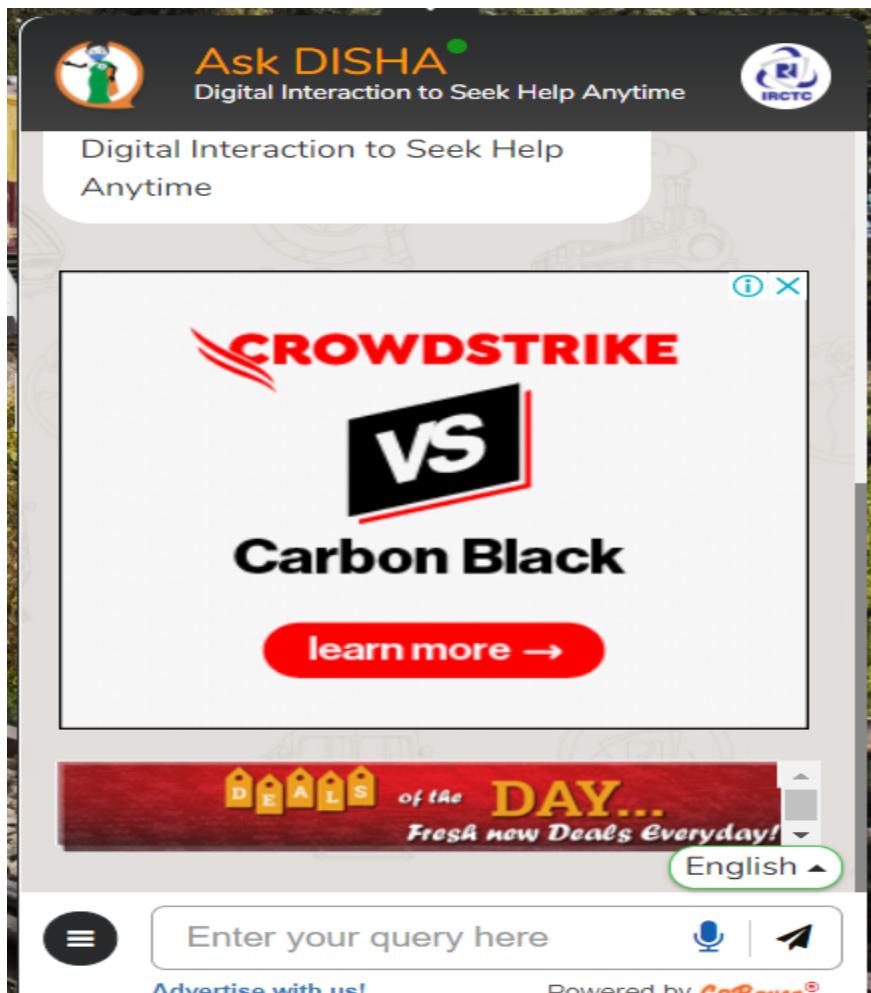
Heuristic Violated: Visibility of system status

Description: On clicking the ‘ASK DISHA’ Button in the navbar gives no output. It does not give any status whether the service is available or not. For new users it might be difficult even to decipher what has exactly happened on the website and whether anything has changed or not. There is no enough amount of feedback for the user



Recommendation: The button should at least provide a feedback alert saying the service is not available right now or coming soon.





Finding 9: The time convention used is rarely followed in India.

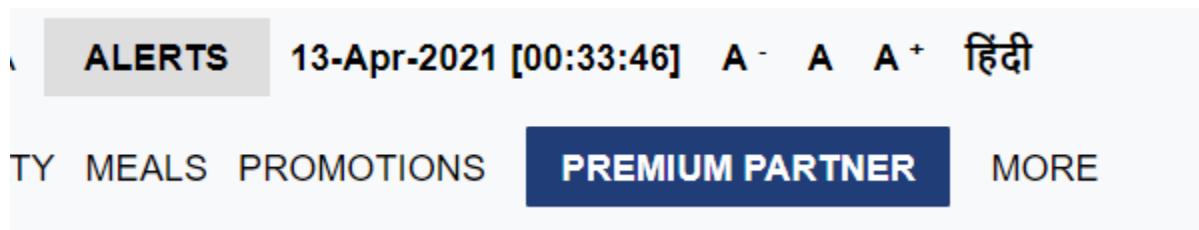
<https://www.irctc.co.in/nget/train-search>

Severity: 2/4

Heuristic Violated: Match between system and the real world

Description: Even though it is a government website, it follows the 24 hour format which is not followed by the major population. India uses the 12-hour clock as the predominant form of stating the time. Hence, the format being different might hinder the users ability to quickly recognize the significance of it. It might also

create confusion as the rural population might not be able to convert it into the desired time format.



Recommendation: It is recommended to use the 12hour format as the default convention. However, an option can be given to change it to the 24 hour format.

5:00 AM, Wed

Finding 10: Unnecessary error asking for class selection.
<https://www.irctc.co.in/nget/booking/train-list>

Severity: 2/4

Heuristic Violated: Flexibility and efficiency of use

Description: On clicking the other dates button, there is an error alert telling to select the class. However, even after selecting the class and clicking the other dates button we can see that the dropdown again contains options for different classes. This unnecessarily creates confusion and increases the navigation time by around 10 seconds only.

EXP 8 UED LAB

The screenshot shows the IRCTC website interface. At the top, there are navigation links for LOGIN, REGISTER, AGENT LOGIN, CONTACT US, ASK DISHA, ALERTS (showing 13-Apr-2021 [02:07:53]), and a dropdown for seat classes (A-, A, A+, Fd). A yellow banner at the top right says "please select class". Below the header, there are links for EXCLUSIVE, TRAINS, BUSES, FLIGHTS, HOTELS, HOLIDAYS, LOYALTY, MEALS, PROMOTIONS, PREMIUM PARTNER, and MORE. The IRCTC logo is also present.

The main search area has fields for NEW DELHI - NDLS, 13/04/2021, All Classes, GENERAL, and a large orange "Modify Search" button. Below these are filters for Train with Available Berth and Divyaang Concession.

The search results for "11 Results for MUMBAI CENTRAL → NEW DELHI | Tue, 13 Apr 2021 For Quota | General" are displayed. One result is highlighted for the NDLS RAJ SPL (02951) train. It shows departure from Mumbai Central at 17:00 on Tuesday, arrival in New Delhi at 08:50 on Wednesday, and runs on Monday through Saturday. The "Train Schedule" link is visible.

For this train, three class options are listed: AC 3 Tier (3A), AC 2 Tier (2A), and AC First Class (1A). The AC 3 Tier (3A) section shows RAC 15, ₹ 2385, and a 94% availability status. The AC 2 Tier (2A) section shows AVAILABLE-0046, ₹ 2850, and a 94% availability status. The AC First Class (1A) section shows WL1, ₹ 4495, and a 94% availability status. Buttons for "Book Now" and "OTHER DATES" are shown.

Below this, a separate window or overlay shows availability for AC First Class (1A) across different dates: Tue, 13 Apr (WL1, 94%), Wed, 14 Apr (AVAILABLE-0001, 94%), Thu, 15 Apr (WL1, 94%), Fri, 16 Apr (WL1, 94%), Sat, 17 Apr (AVAILABLE-0001, 94%), and Sun, 18 Apr (AVAILABLE-0008, 94%). A "Book Now" button and the price ₹ 4495 are visible.

Recommendation: The errors should not be generated if the class is not selected as the user is given an option even after selecting it on the first instance.