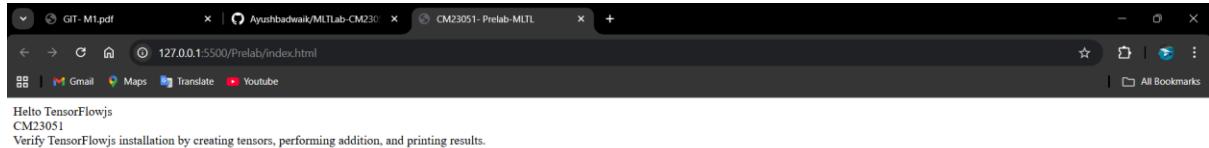
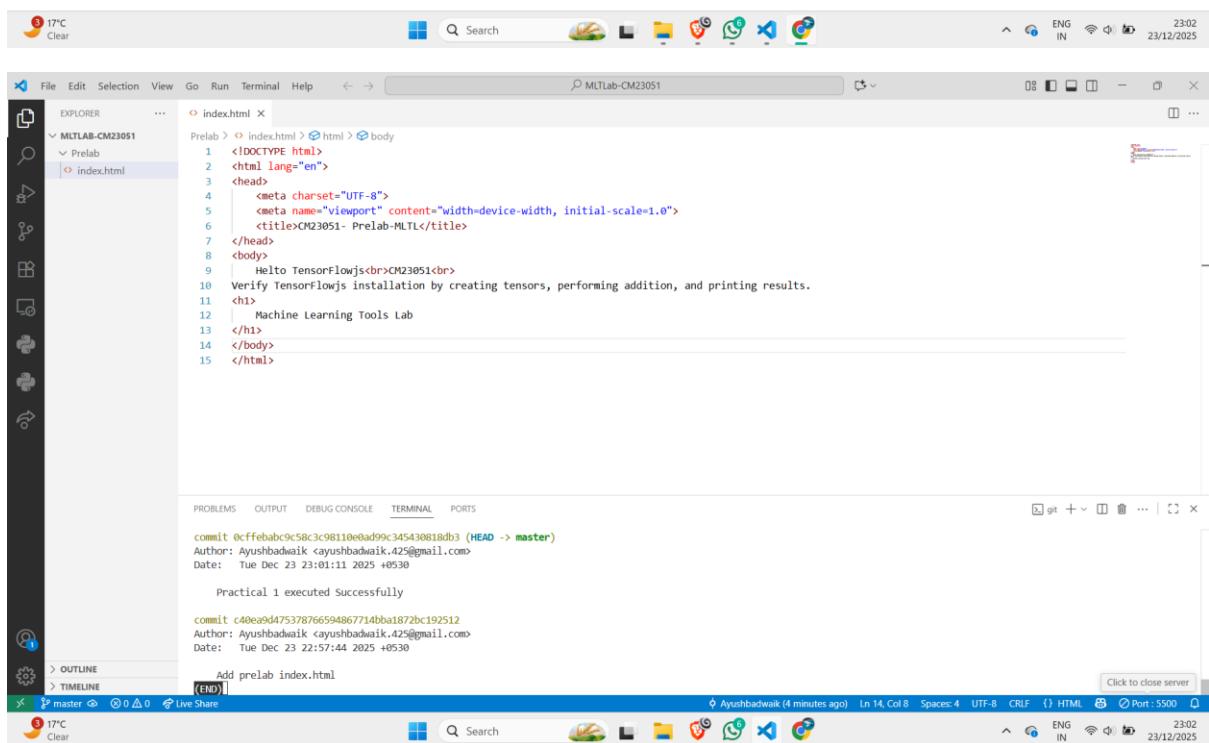


PRELAB OUTPUT
MACHINE LEARNING TOOLS LAB
AYUSH D. BADWAIK [CM23051]

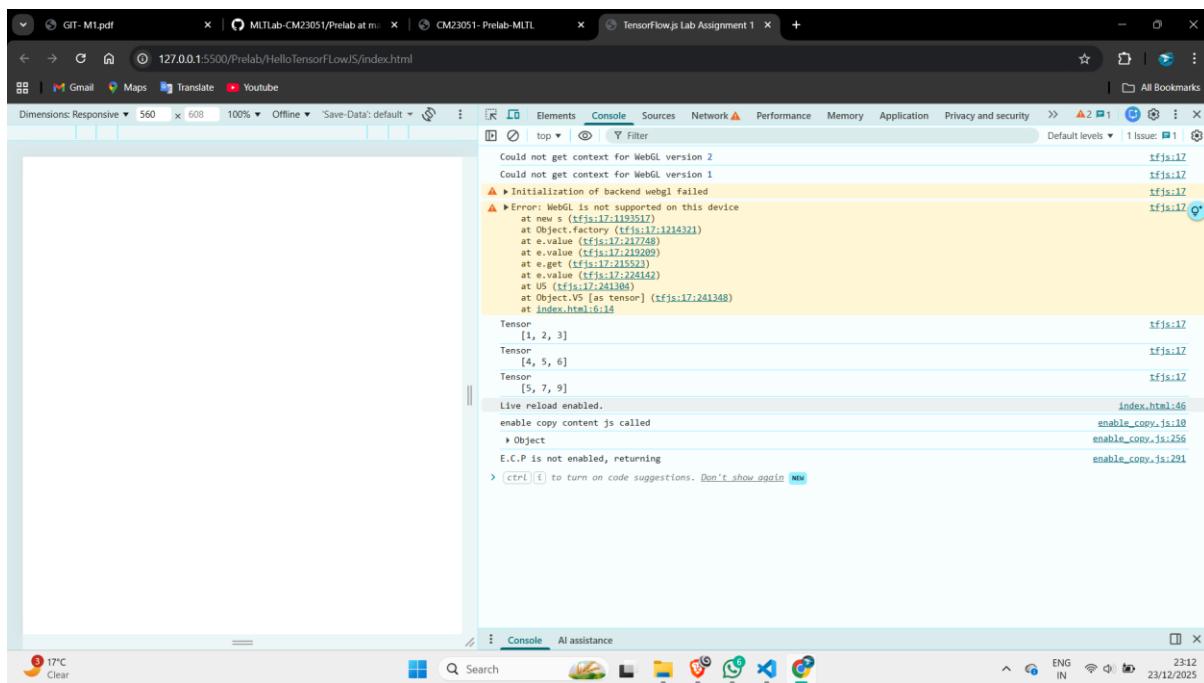


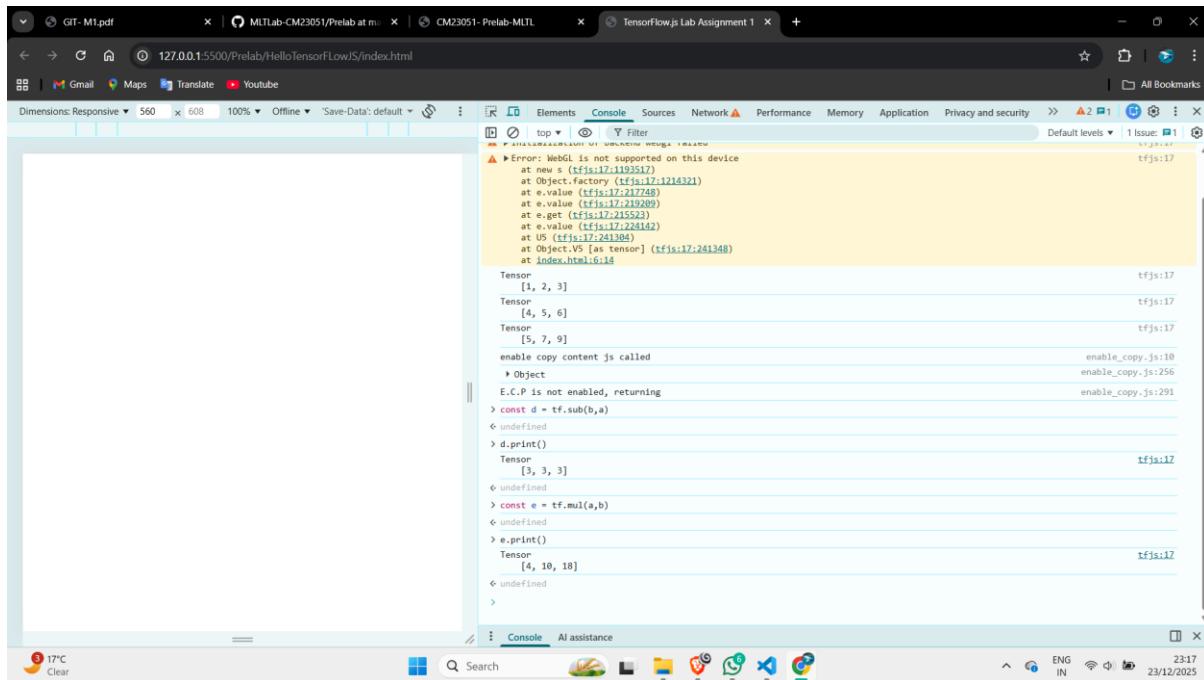
Machine Learning Tools Lab



PROBLEMS OUTPUT DEBUG CONSOLE TERMINAL PORTS

- PS D:\MLTLab-CM23051> git branch -M main
- PS D:\MLTLab-CM23051> git remote add origin https://github.com/Ayushbadwaik/MLTLab-CM23051.git
- PS D:\MLTLab-CM23051> git push -u origin main
Enumerating objects: 8, done.
Counting objects: 100% (8/8), done.
Delta compression using up to 12 threads
Compressing objects: 100% (4/4), done.
Writing objects: 100% (8/8), 824 bytes | 824.00 KiB/s, done.
Total 8 (delta 1), reused 0 (delta 0), pack-reused 0 (from 0)
remote: Resolving deltas: 100% (1/1), done.
To https://github.com/Ayushbadwaik/MLTLab-CM23051.git
* [new branch] main -> main
branch 'main' set up to track 'origin/main'.
○ PS D:\MLTLab-CM23051>





PROBLEMS OUTPUT DEBUG CONSOLE TERMINAL PORTS

PS D:\MLTLab-CM23051> `git status`

Changes to be committed:

(use "git restore --staged <file>..." to unstage)
new file: Prelab/HelloTensorFlowJS/index.html

● PS D:\MLTLab-CM23051> `git commit -m "Assignment 1 successful Add HelloTensorFlowJS prelab index.html"`

```
>>
[main b24ec09] Assignment 1 successful Add HelloTensorFlowJS prelab index.html
 1 file changed, 19 insertions(+)
 create mode 100644 Prelab/HelloTensorFlowJS/index.html
```

● PS D:\MLTLab-CM23051> `git push -u origin main`

```
Enumerating objects: 7, done.
Counting objects: 100% (7/7), done.
Delta compression using up to 12 threads
Compressing objects: 100% (3/3), done.
Writing objects: 100% (5/5), 622 bytes | 622.00 KiB/s, done.
Total 5 (delta 0), reused 0 (delta 0), pack-reused 0 (from 0)
To https://github.com/Ayushbadwaik/MLTLab-CM23051.git
 0cffeba..b24ec09  main -> main
branch 'main' set up to track 'origin/main'.
○ PS D:\MLTLab-CM23051>
```

```

TensorFlow.js – Tensor Creation
Ayush D. Badwak
CM23051

Create tensors of different dimensions (scalar, vector, matrix) and print them.

Scalar Tensor:
Tensor
  10
Shape: > Array(0)
Rank: 0

Vector Tensor:
Tensor
  [1, 2, 3, 4, 5]
Shape: > Array(1)
Rank: 1

Matrix Tensor:
Tensor
  [[1, 2, 3],
   [4, 5, 6]]
Shape: > Array(2)
Rank: 2

Live reload enabled.
enable_copy content js called
  > Object
E.C.P. is not enabled, returning
> | ctrl | ⌘ | to turn on code suggestions. Don't show again NEW

```

Tensor Reshape and Flatten (TensorFlow.js)

Concept Explanation

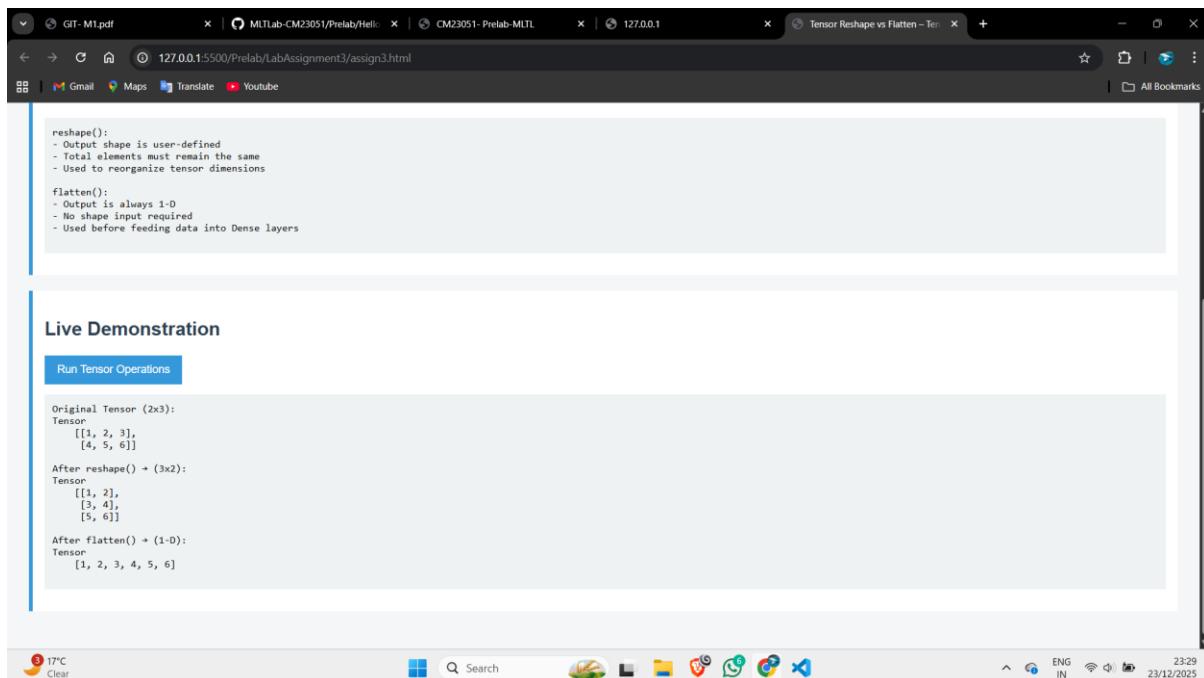
`reshape()` and `flatten()` are tensor operations used to modify the shape of data without changing the total number of elements.

- `reshape()` changes a tensor into a user-defined shape while keeping the same data.
- `flatten()` converts a tensor of any dimension into a one-dimensional tensor.

Difference Between `reshape()` and `flatten()`

<pre> reshape(): - Output shape is user-defined - Total elements must remain the same - Used to reorganize tensor dimensions flatten(): - Output is always 1-D - No shape input required - Used before feeding data into Dense layers </pre>

Live Demonstration



The screenshot shows a web browser window with multiple tabs open. The active tab displays code related to tensor operations:

```

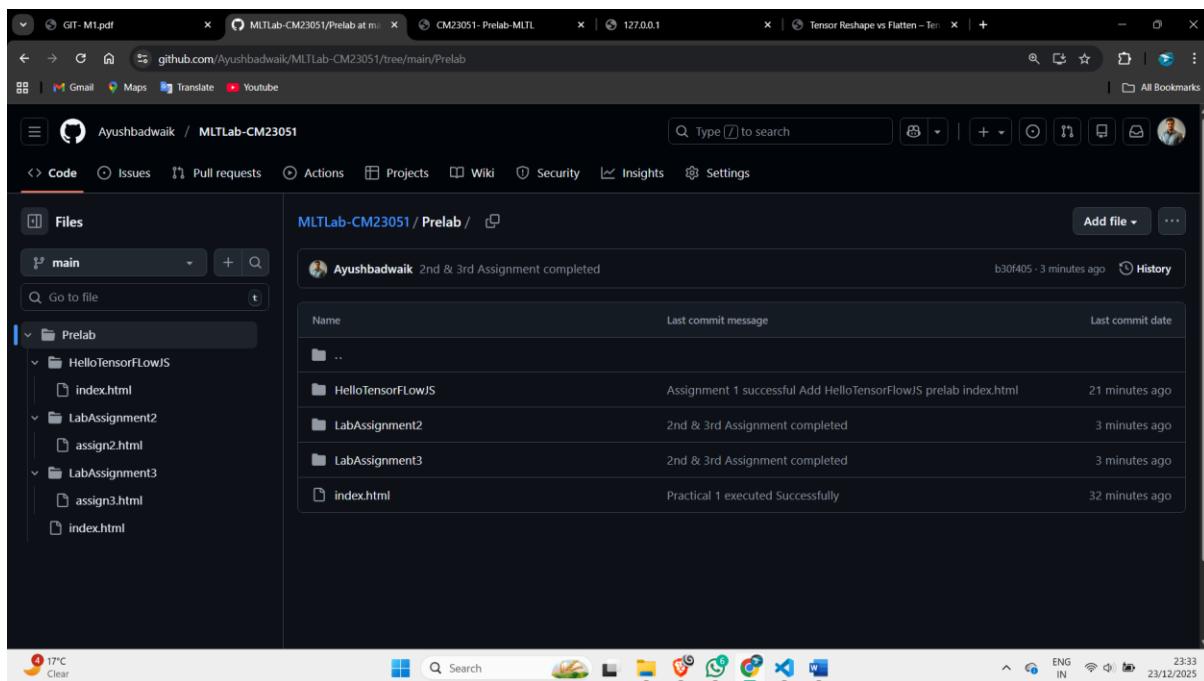
reshape():
- Output shape is user-defined
- Total elements must remain the same
- Used to reorganize tensor dimensions

flatten():
- Output is always 1-D
- No shape input required
- Used before feeding data into Dense layers
  
```

Below this, there is a section titled "Live Demonstration" with a "Run Tensor Operations" button. The demonstration shows the results of three operations:

- Original Tensor (2x3):
`Tensor`
`[1, 2, 3],
[4, 5, 6]`
- After reshape() + (3x2):
`Tensor`
`[1, 2],
[3, 4],
[5, 6]`
- After flatten() + (1-D):
`Tensor`
`[1, 2, 3, 4, 5, 6]`

The browser's status bar at the bottom indicates the date and time as 23/12/2025, 23:29.



The screenshot shows a GitHub repository page for "Ayushbadwai/MLTLab-CM23051". The "Code" tab is selected, showing the file structure and commit history for the "Prelab" directory:

- Files** (main, Prelab)
- Prelab** (HelloTensorFlowJS, LabAssignment2, LabAssignment3)
 - HelloTensorFlowJS** (index.html)
 - LabAssignment2** (assign2.html)
 - LabAssignment3** (assign3.html, index.html)

The commit history for the "Prelab" directory is as follows:

Name	Last commit message	Last commit date
..		
HelloTensorFlowJS	Assignment 1 successful Add HelloTensorFlowJS prelab index.html	21 minutes ago
LabAssignment2	2nd & 3rd Assignment completed	3 minutes ago
LabAssignment3	2nd & 3rd Assignment completed	3 minutes ago
index.html	Practical 1 executed Successfully	32 minutes ago

The browser's status bar at the bottom indicates the date and time as 23/12/2025, 23:33.