Applications Created

Riddhi Goswami

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Inertia Calculator

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Key Features

- Built using WPF (Desktop App Framework)
- Includes calculation for Rectangular and Circular Section
- Inputs (all in mm):
  Rectangular - Height, Width, Sidecover, Cover, Stirrup Dia
  Circular - Radius, Cover, Stirrup Dia
- Outputs (all in mm):
  Rebar Area, Ix, Iy, rx, ry
  Total Area, Ix, Iy, rx, ry
- Validation Checks applied on user inputs
- Error List which highlights the errors
- Dynamic illustration which is scaled to the inputs

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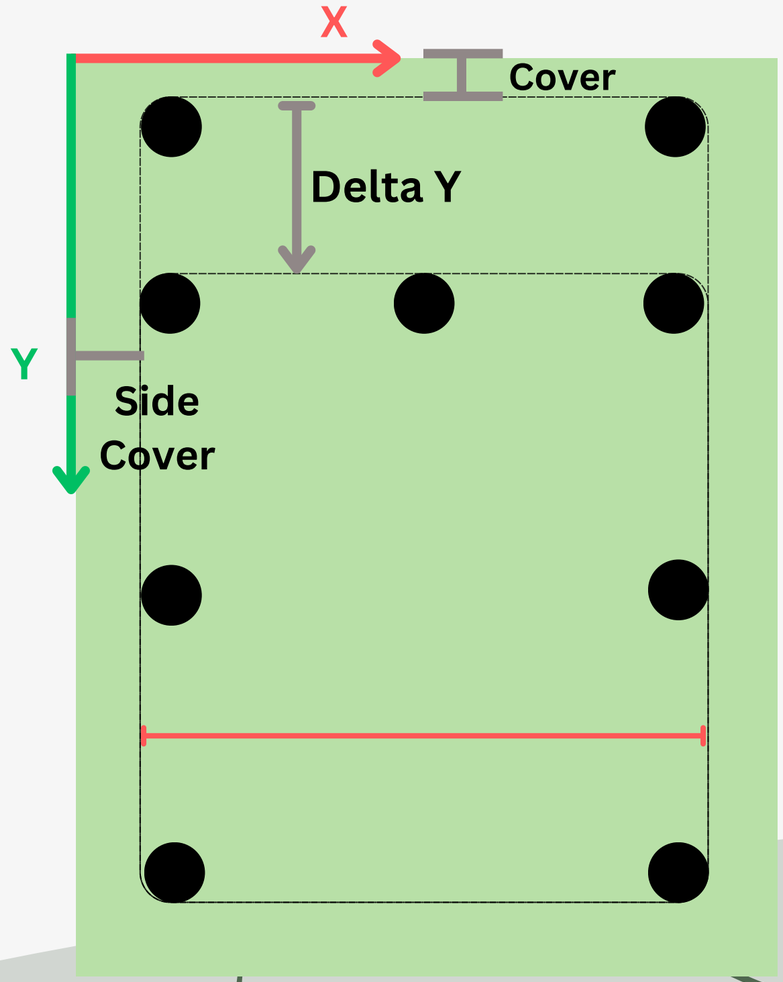
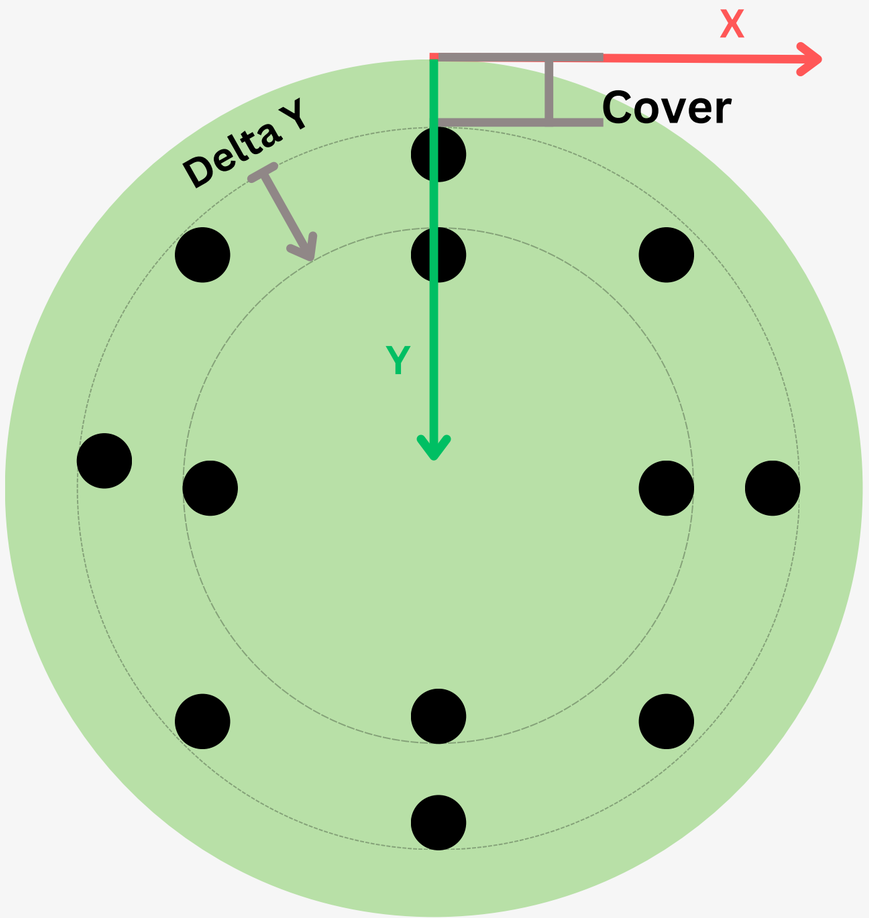
Guide Diagrams





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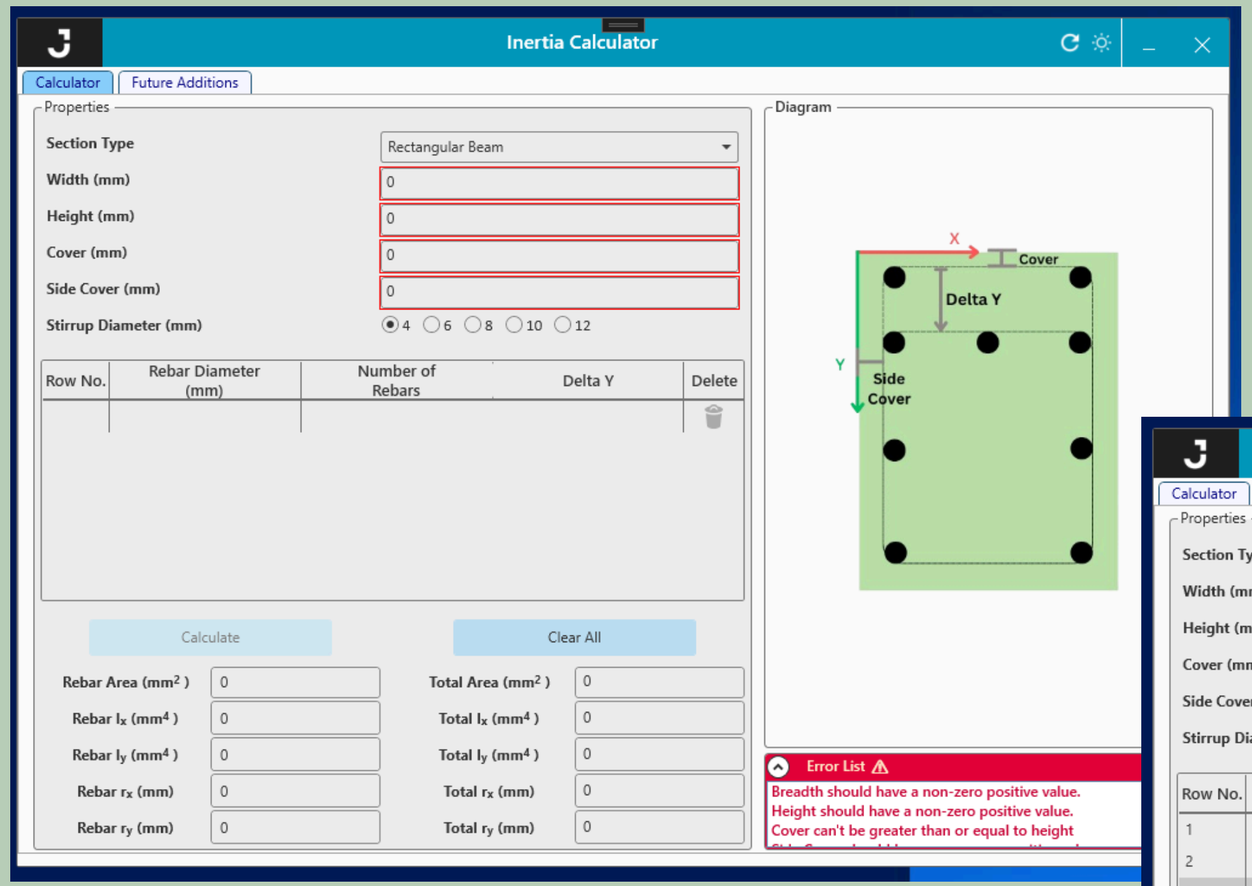
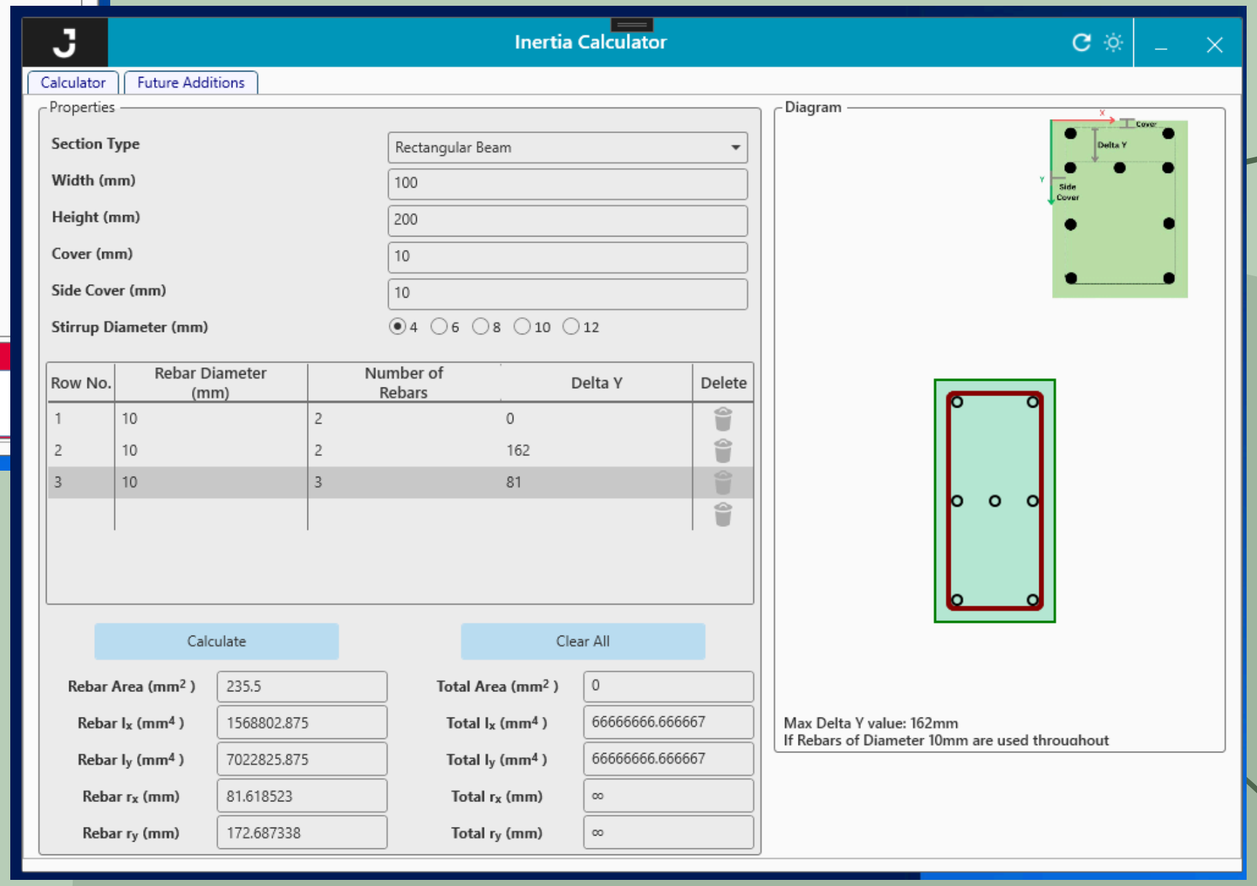
Rectangular Section





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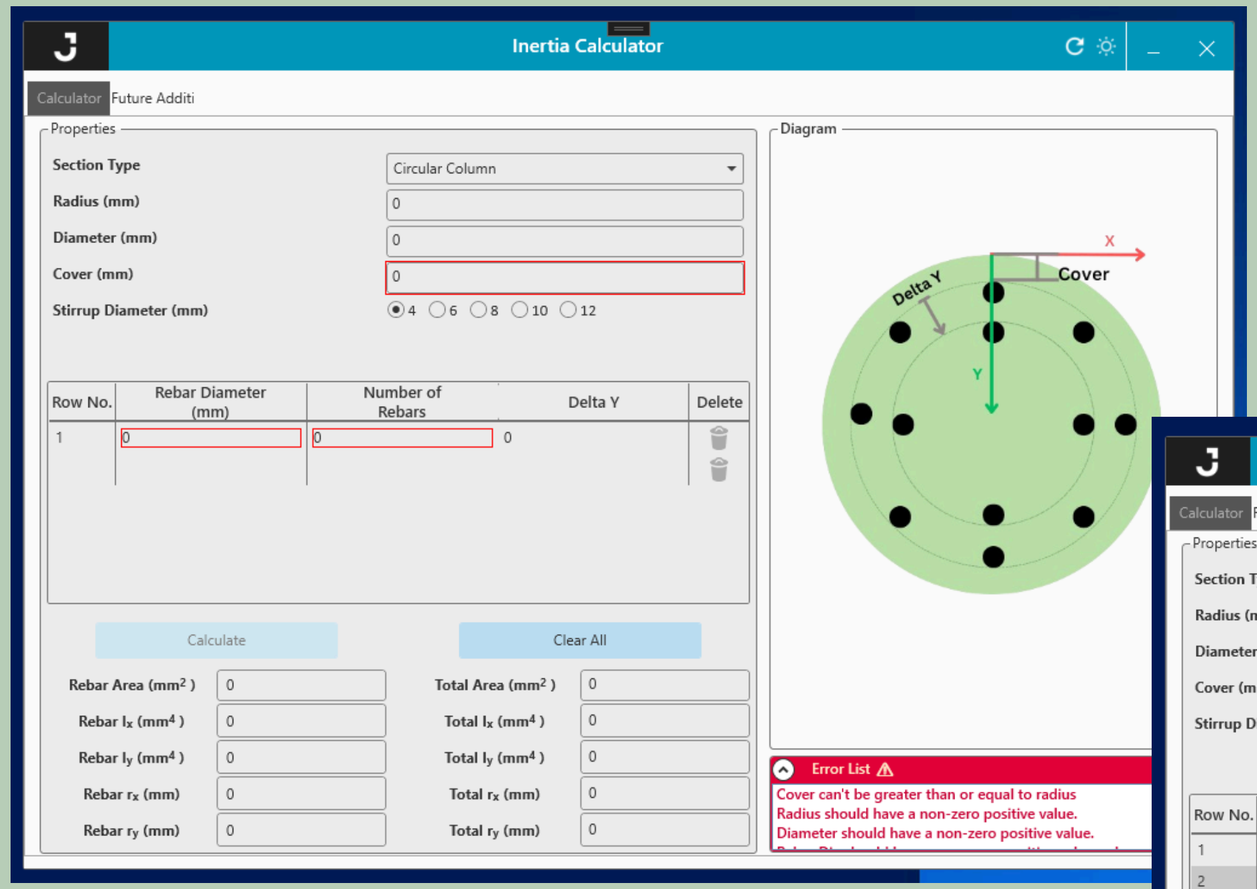
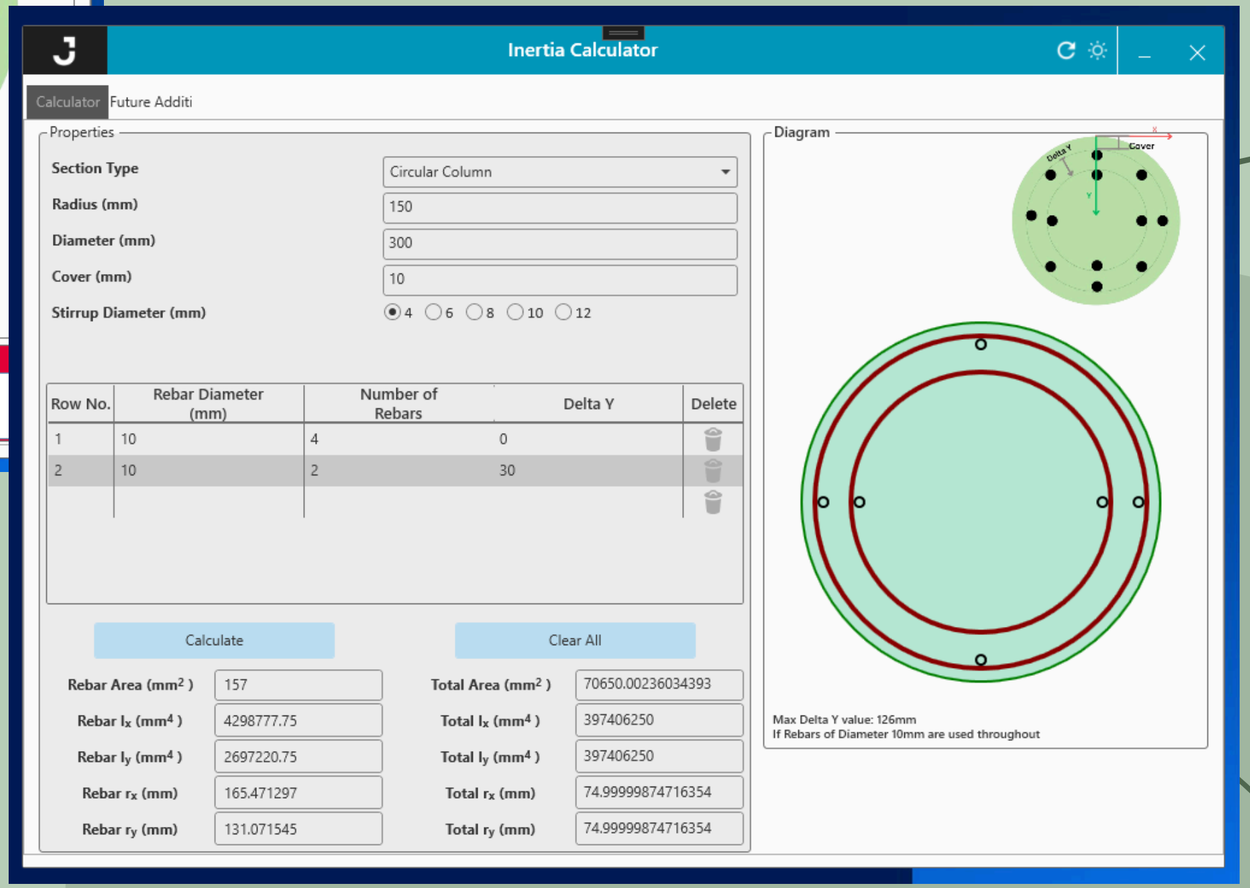
Circular Section





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ETABS Workbook Visualisation

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Key Features

- Dashboards built using Shiny and Streamlit (Python frameworks)
- Responsive visualisations made using Plotly
- Checks placed to ensure only uploading of valid ETABS excel workbooks
- Currently, visualisations for beam, column, slab mass contributions storywise (section wise) are generated
- Download the filtered dataframe (if required)

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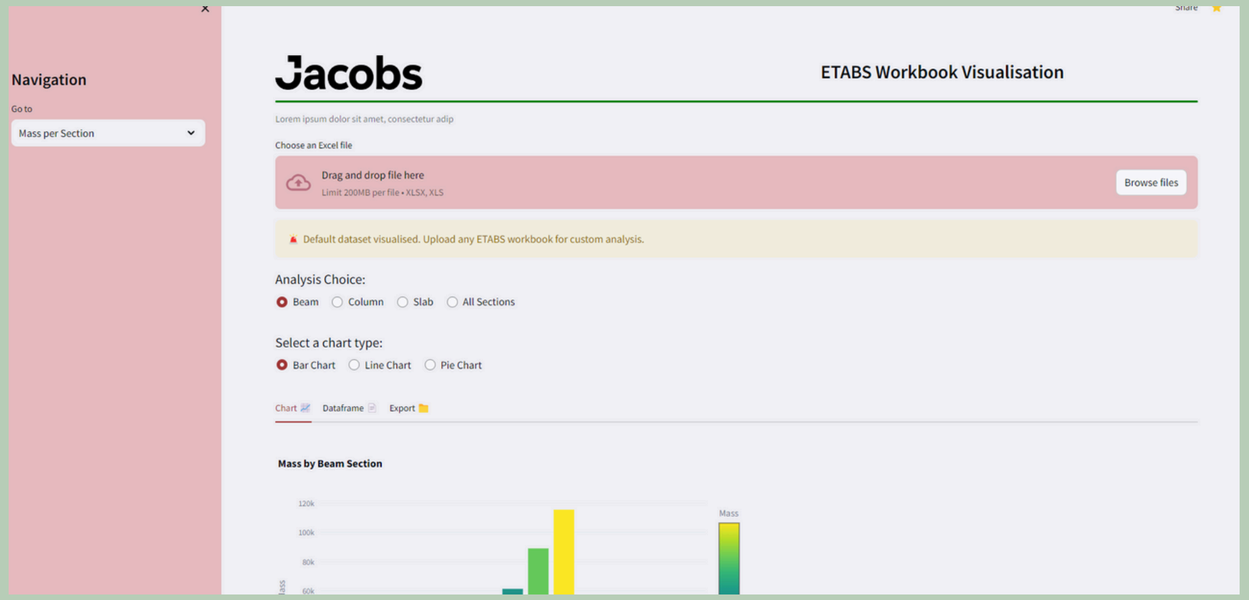
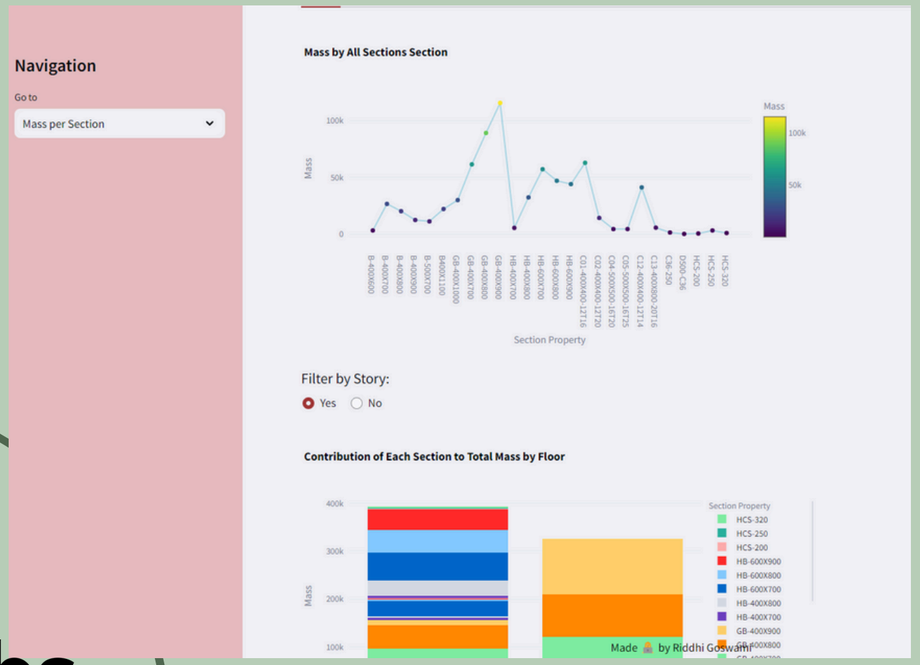
Streamlit

https://etabs-workbook-visualisation.streamlit.app





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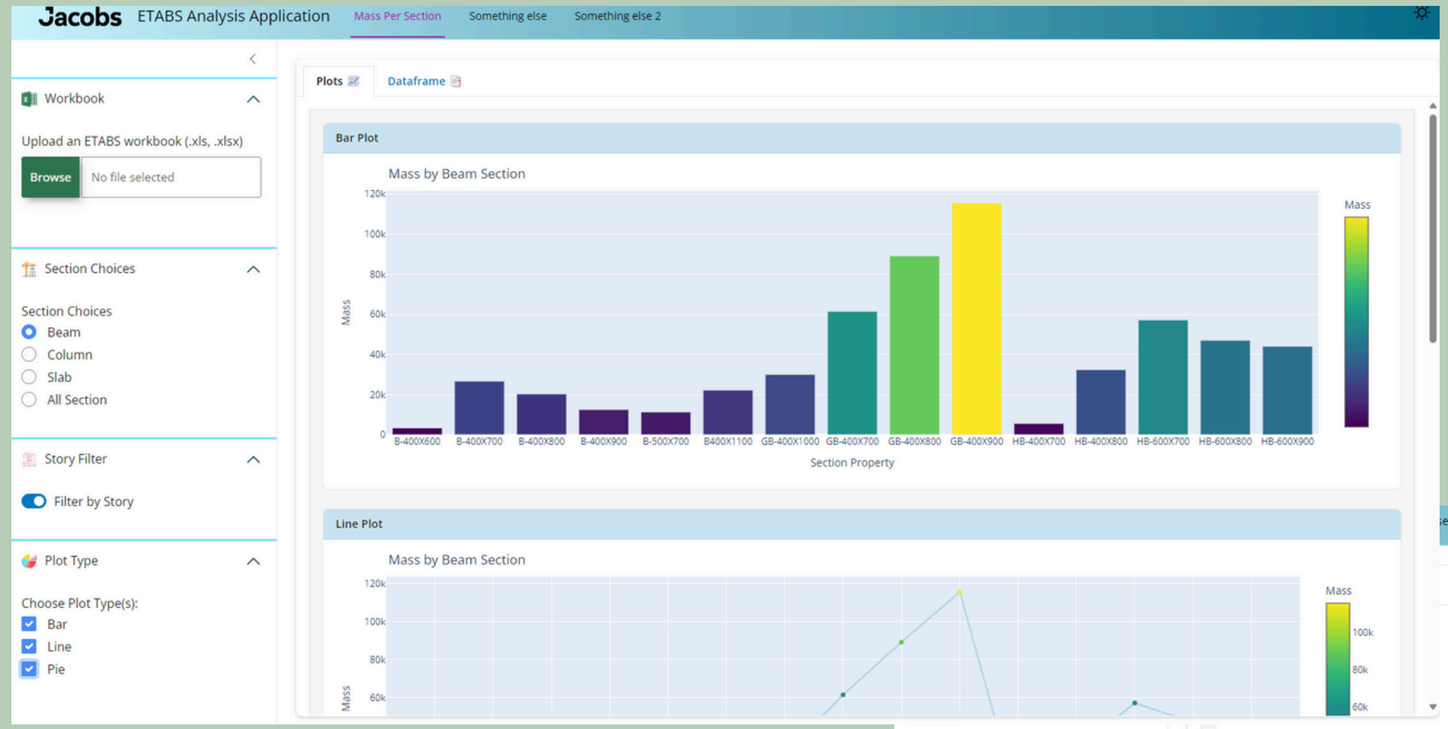
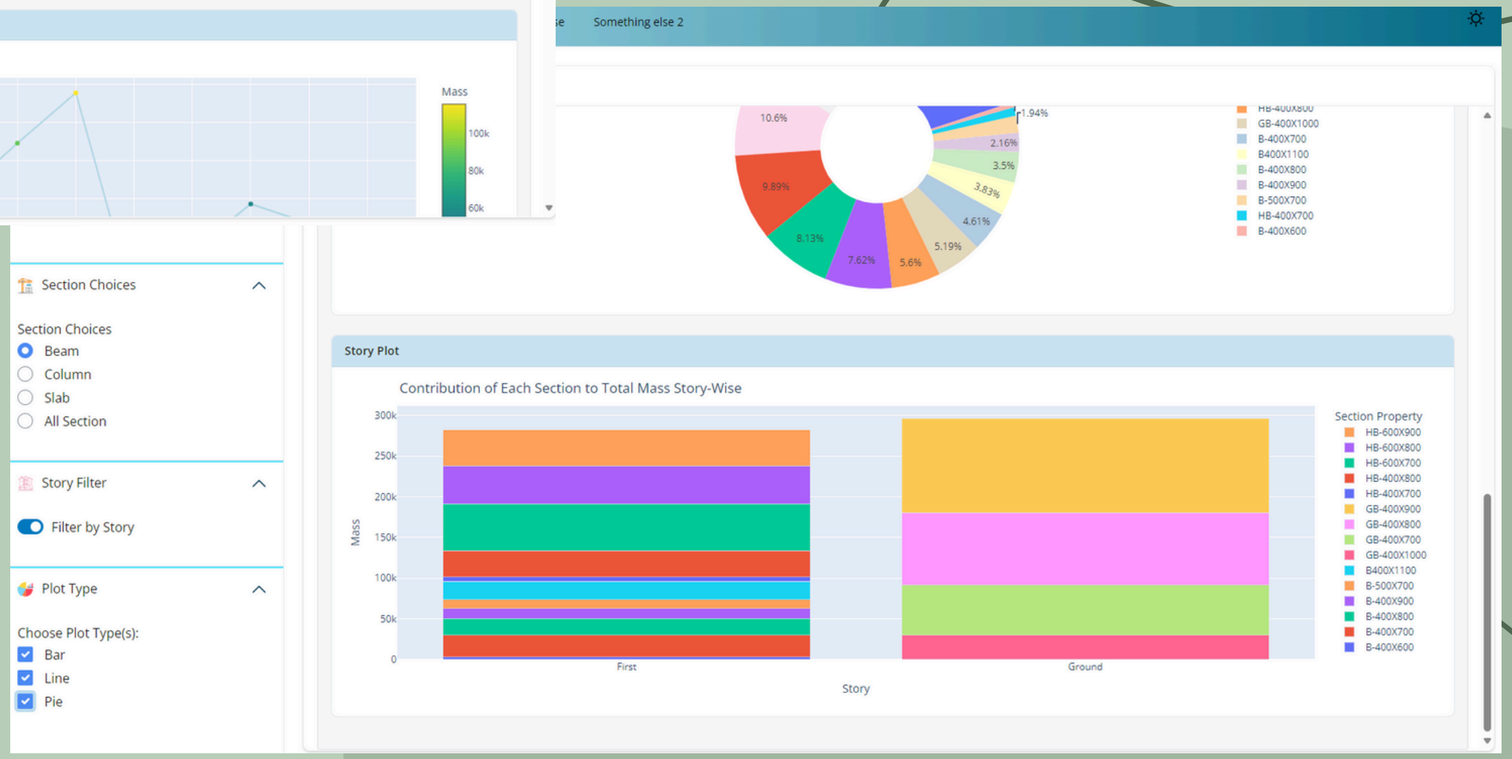
Shiny

https://riddhi-goswami.shinyapps.io/etabsvisualisation/





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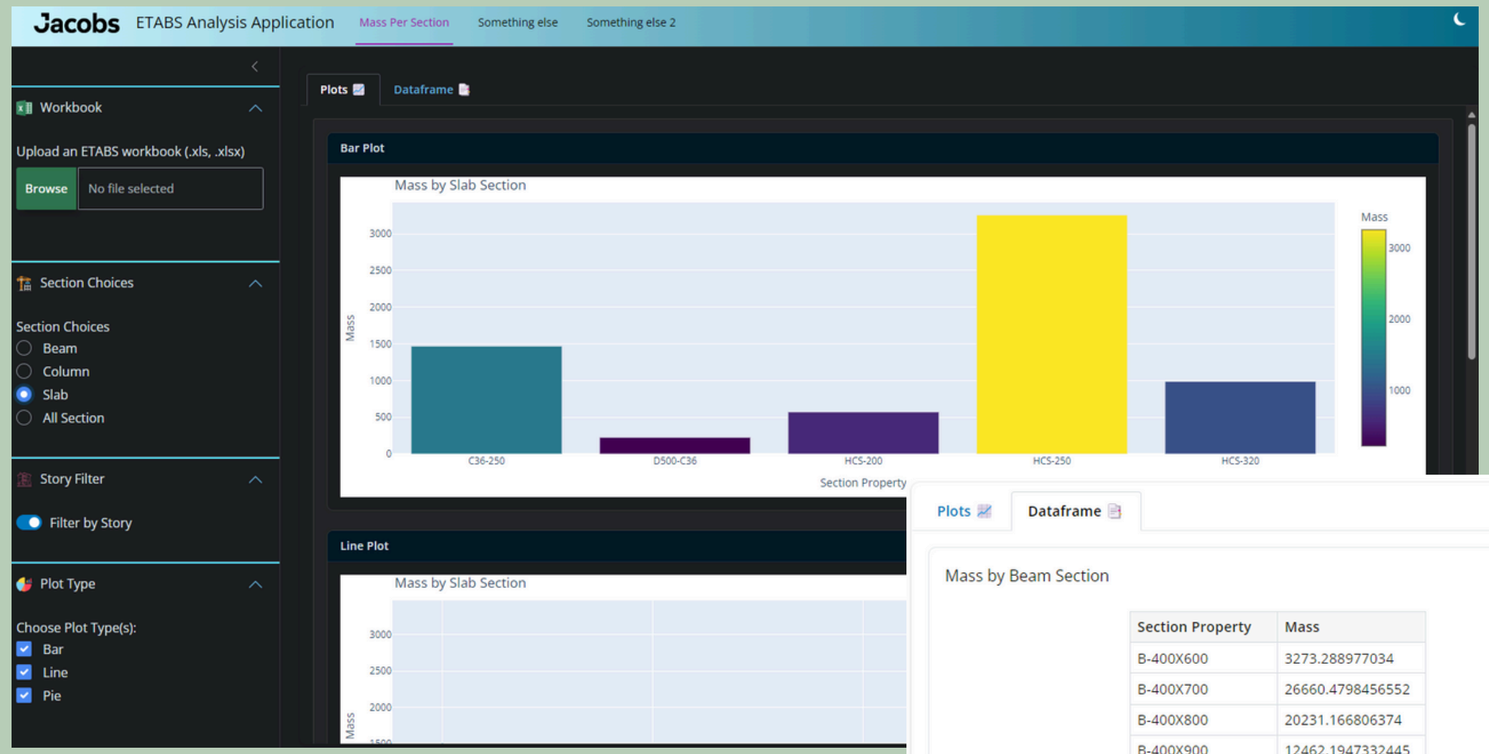

Plots | Dataframe

Mass by Beam Section

Section Property	Mass
B-400X600	3273.288977034
B-400X700	26660.4798456552
B-400X800	20231.166806374
B-400X900	12462.1947332445
B-500X700	11242.9736160526
B400X1100	22147.3202206331
GB-400X1000	30005.0264171376
GB-400X700	61440.8241202346
GB-400X800	89097.542545366
GB-400X900	115529.5375916091
HB-400X700	5531.9603428066
HB-400X800	32361.5580795547
HB-600X700	57175.4868979111
HB-600X800	46988.5343742035
HB-600X900	44051.7395040085

Download CSV

Contribution of Each Section to Total Mass Story-Wise

Story	Label	Design Type	Length	Section Property	Material Type	Area	Volum
First	B10	Beam	5.59999	HB-600X800	C36/45	0.48	2.6879
First	B55	Beam	8.19999	HB-600X900	C36/45	0.54	4.4279
First	B63	Beam	5.59999	HB-600X700	C36/45	0.42	2.3519
First	B64	Beam	5.95001	HB-600X700	C36/45	0.42	2.4990
First	B65	Beam	3.15	HB-600X700	C36/45	0.42	1.323
First	B66	Beam	6.54999	HB-600X700	C36/45	0.42	2.7509
First	B69	Beam	5.59999	HB-600X900	C36/45	0.54	3.0239
First	B70	Beam	9.10001	HB-600X900	C36/45	0.54	4.9140
First	B71	Beam	8.19999	HB-600X800	C36/45	0.48	3.9359
First	B72	Beam	8.20001	HB-600X800	C36/45	0.48	3.9360
First	B73	Beam	8.19999	HB-400X800	C36/45	0.32	2.6239
First	B74	Beam	8.20001	HB-600X800	C36/45	0.48	3.9360
First	B76	Beam	8.1198200001	HB-400X800	C36/45	0.32	2.5983
First	B77	Beam	9.385779723	B400X1100	C36/45	0.44	4.1297

Viewing rows 1 through 15 of 118

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Enforcing Naming Convention

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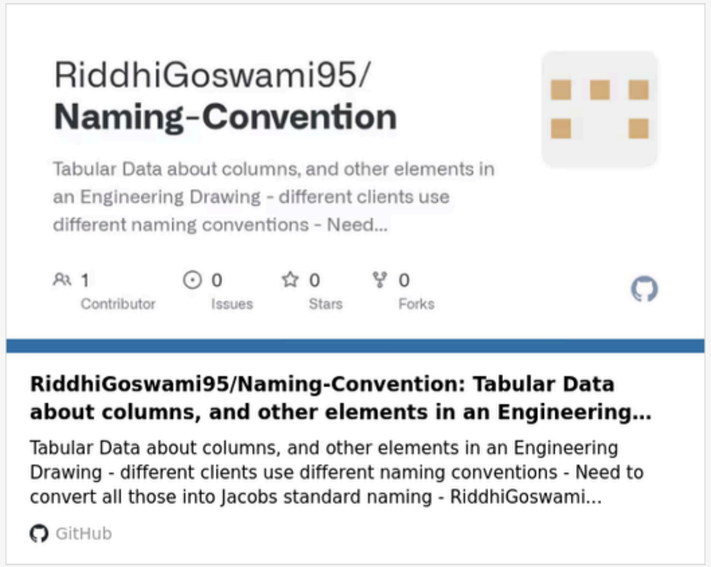
Work in Progress

- **Sequence-to-Sequence** (Seq2Seq): Models like LSTMs or GRUs are good for mapping sequences of characters (incorrect name) to another sequence (correct name).
- **Transformer-Based Models** (e.g., BERT, GPT)
- **Fuzzy Matching**

https://github.com/RiddhiGoswami95/Naming-Convention



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Thank you!