Report: Cross Migration of Gradio and Streamlit Interfaces

Objective:
The assignment aims to create two interactive interfaces using Gradio and Streamlit and test their functionality on Kaggle. Once verified, I cross-migrated each application to the other platform and documented the process, including modifications, challenges, and screenshots.

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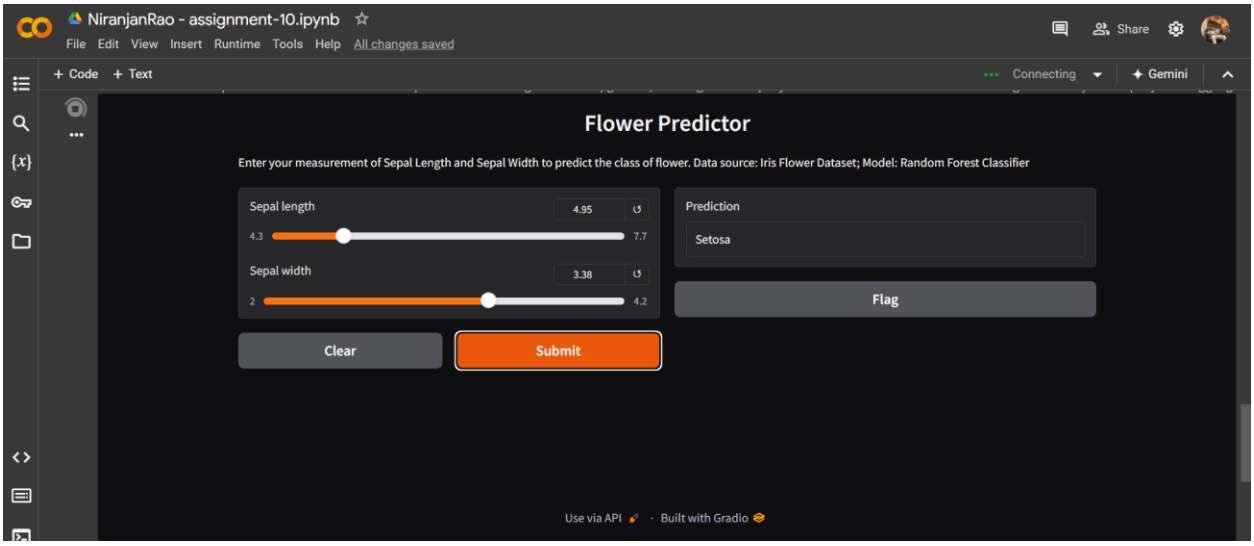
1. Initial Setup and Testing on Kaggle

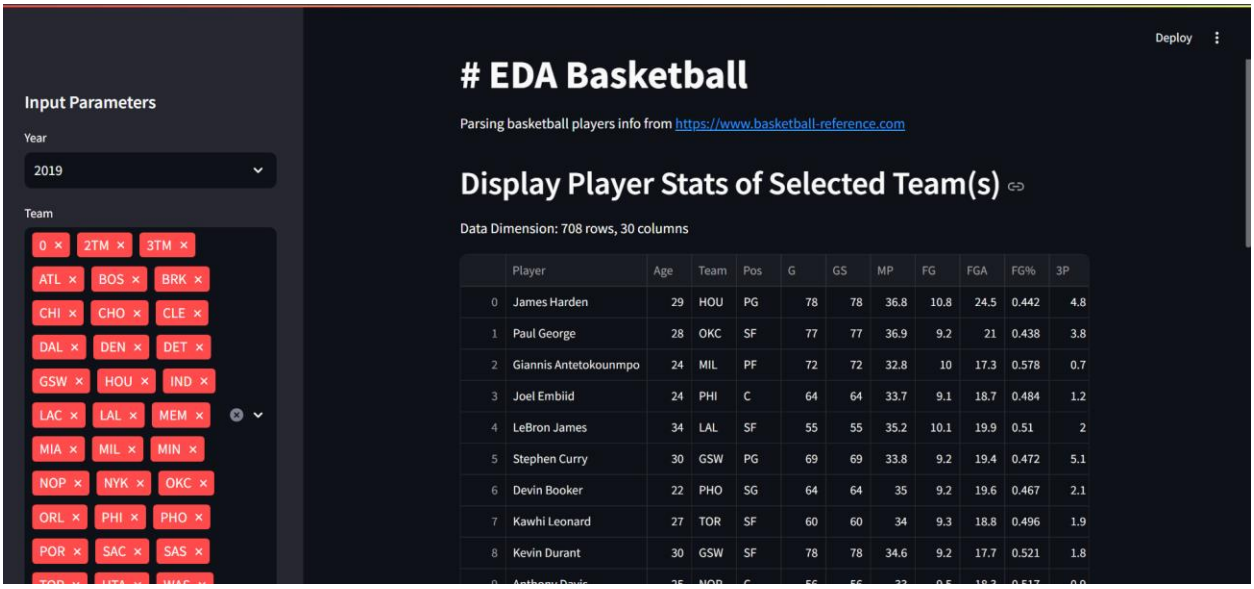
I began by setting up both Gradio and Streamlit environments on Kaggle Notebooks using the provided examples.

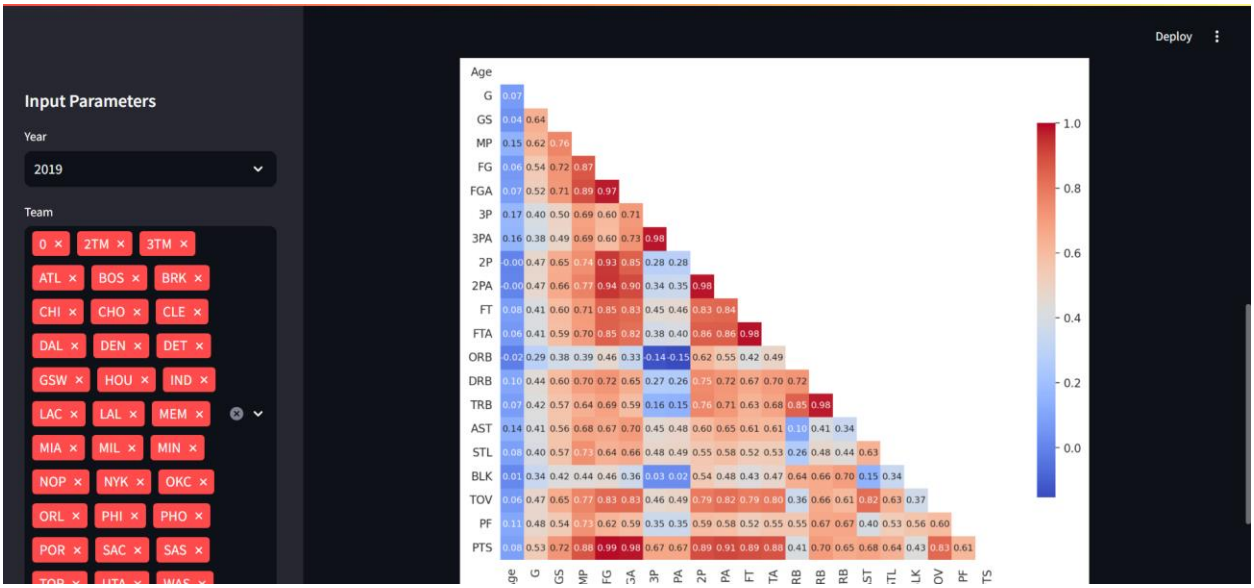
1. **Gradio Example:**
    - Followed the Gradio code in Kaggle Notebook.
    - Loaded the necessary libraries and dataset.
    - Tested the model's prediction output through the Gradio interface.
    - Screenshot of Gradio interface showcasing input parameters and predictions.



2. **Streamlit Example:**
    - Loaded the Streamlit environment in Kaggle.
    - Adjusted code compatibility for Kaggle's setup.

- Verified the interactive output and captured screenshots of filters and displayed data.
- Screenshot of Streamlit interface, showing user inputs and resulting data.





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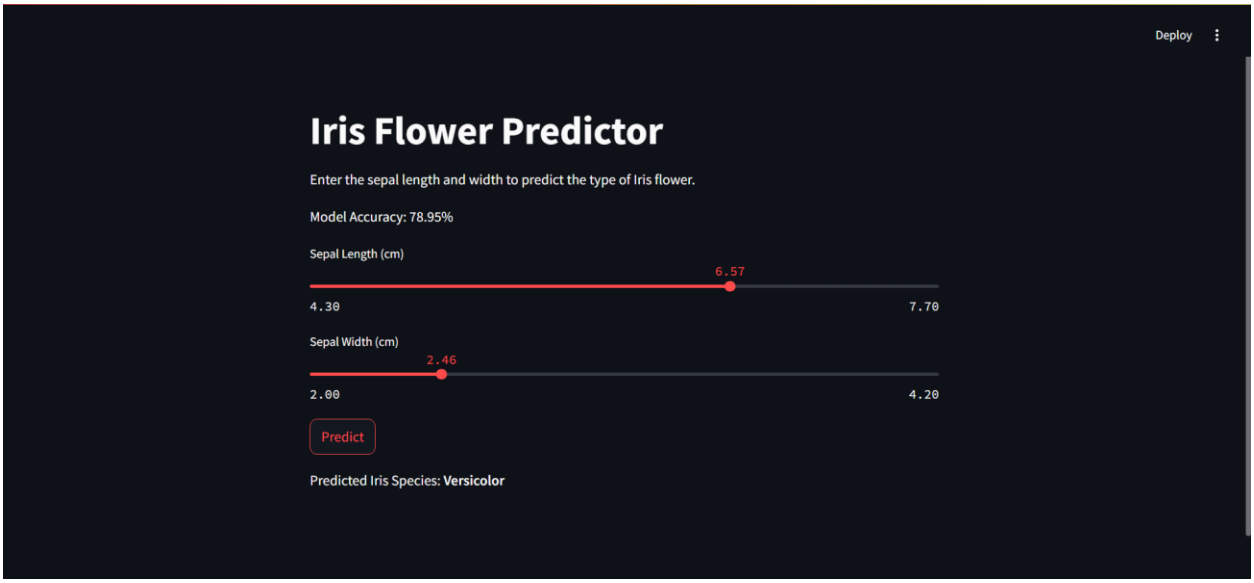
2. Cross Migration

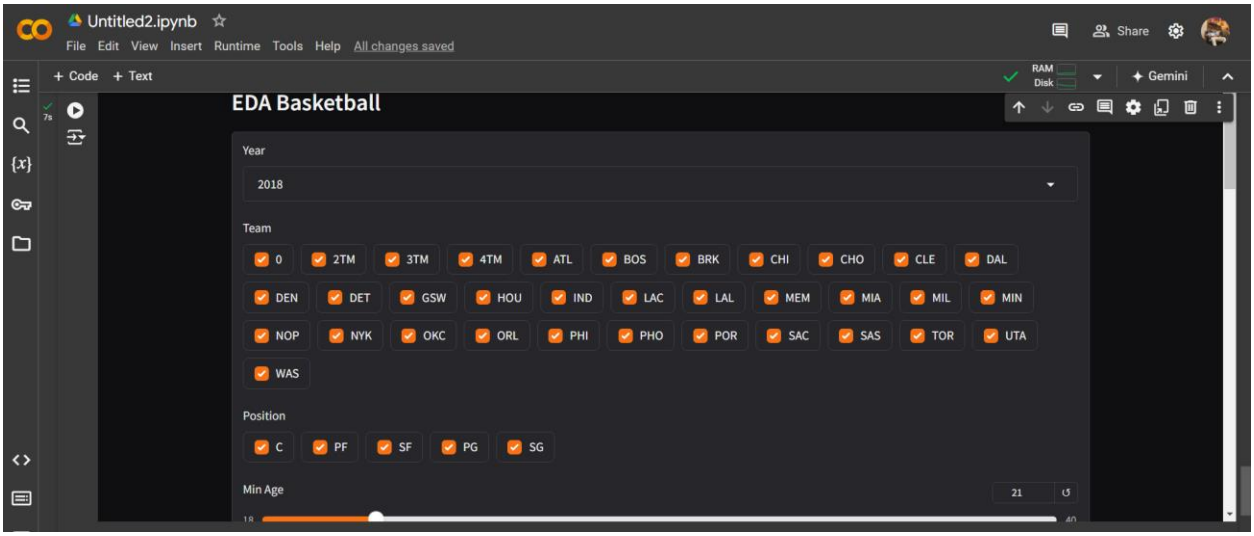
After validating the standalone versions, I proceeded to convert each application:

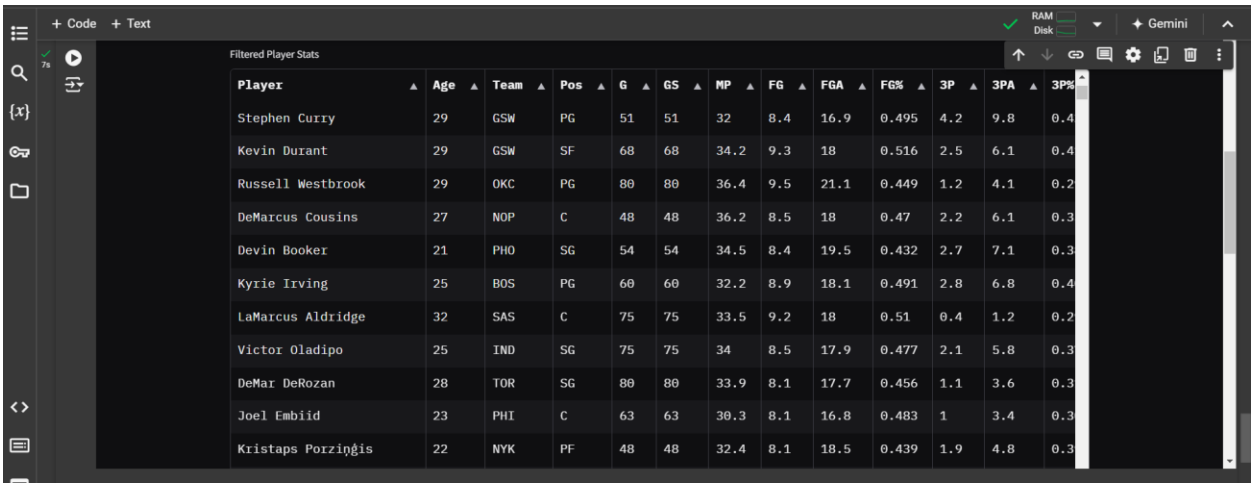
1. **Converting Streamlit to Gradio:**
   - Streamlit's widget-based setup required conversion to Gradio components.
   - Implemented Gradio sliders, dropdowns, and tables.

- Adapted data filtering and display for Gradio.
- Screenshots of the new Gradio interface with inputs and results.

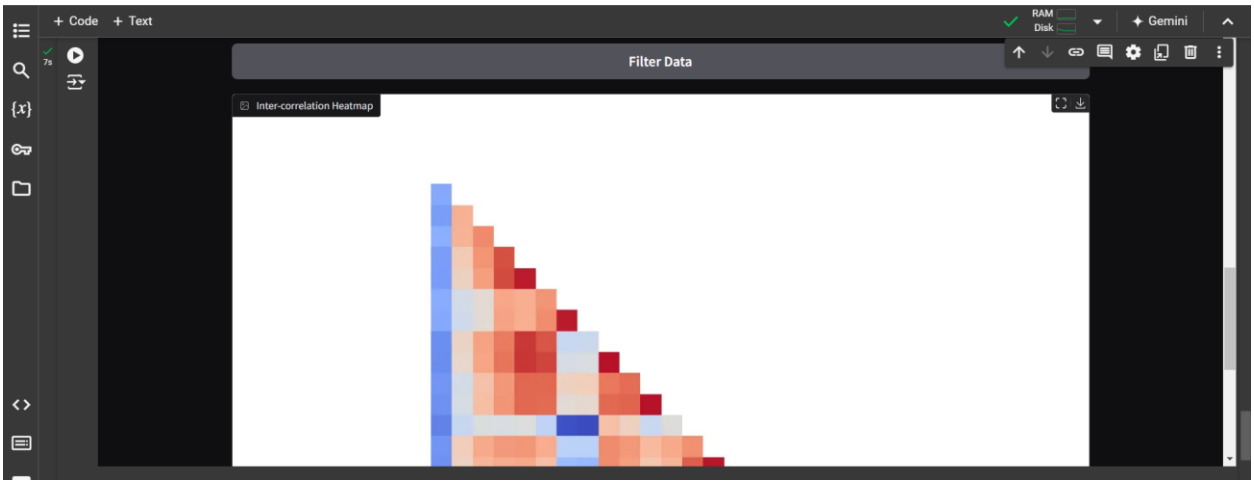


2. **Converting Gradio to Streamlit:**
   - Gradio's components were translated to Streamlit's corresponding widgets.
   - Reorganized layout to suit Streamlit's styling.
   - Added caching for optimized performance on Streamlit.
   - Screenshots of the Streamlit-adapted interface displaying model predictions.





Player	Age	Team	Pos	G	GS	MP	FG	FGA	FG%	3P	3PA	3P%
Stephen Curry	29	GSW	PG	51	51	32	8.4	16.9	0.495	4.2	9.8	0.4
Kevin Durant	29	GSW	SF	68	68	34.2	9.3	18	0.516	2.5	6.1	0.4
Russell Westbrook	29	OKC	PG	80	80	36.4	9.5	21.1	0.449	1.2	4.1	0.2
DeMarcus Cousins	27	NOP	C	48	48	36.2	8.5	18	0.47	2.2	6.1	0.3
Devin Booker	21	PHO	SG	54	54	34.5	8.4	19.5	0.432	2.7	7.1	0.3
Kyrie Irving	25	BOS	PG	60	60	32.2	8.9	18.1	0.491	2.8	6.8	0.4
LaMarcus Aldridge	32	SAS	C	75	75	33.5	9.2	18	0.51	0.4	1.2	0.2
Victor Oladipo	25	IND	SG	75	75	34	8.5	17.9	0.477	2.1	5.8	0.3
DeMar DeRozan	28	TOR	SG	80	80	33.9	8.1	17.7	0.456	1.1	3.6	0.3
Joel Embiid	23	PHI	C	63	63	30.3	8.1	16.8	0.483	1	3.4	0.3
Kristaps Porziņģis	22	NYK	PF	48	48	32.4	8.1	18.5	0.439	1.9	4.8	0.3



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3. Challenges Faced and Solutions

- **Layout Adjustments:** The initial layouts for Gradio and Streamlit required restructuring due to each framework's unique design philosophy.
    - *Solution:* I created modular functions to manage input and output displays.
- **Interactivity Differences:** Gradio and Streamlit have different approaches to widget reactivity.
    - *Solution:* Used Streamlit's @st.cache decorator for data-dependent functions and Gradio’s live updating features.

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4. Conclusion

The cross migration of applications demonstrated the adaptability of code between Gradio and Streamlit with minor adjustments. The exercise enhanced understanding of both frameworks' pros and cons, particularly regarding customization and reactivity. Screenshots of final cross-migrated versions verify functionality.