Installation and User Guide

Prepared by Group 9

Prepared for HRs and Analysts

Executive Summary

BiasTrack is an AI-driven system that detects and corrects gender pay disparities before they widen.

It empowers HR professionals to visualize, simulate, and optimize fair compensation decisions using data-driven insights.

Installation

⚙️ System Requirements

- **Python Version:** 3.12.x
- **Interface:** Streamlit
- **Libraries:** pandas, numpy, scikit-learn, matplotlib, joblib, etc.
- **Virtual Environment:** Required for isolated dependency management

🧩 Installation Steps

1. Clone the Repository

```
git clone https://github.com/IRS-PM-Group9/IRS-PM-2025-10-01-IS02FT-GRP9-BiasTrack.git

cd <your_project_path>/BiasTrack
```

2. Run the Setup Script

Run the automated setup to create and configure the virtual environment.

Windows	.\setup_env.bat
macOS / Linux	bash setup_env.sh

This will install all dependencies and create a .venv folder inside your project.

3. Activate the Virtual Environment

If using VS Code

- The virtual environment activates automatically when the workspace opens.
- Open a new terminal — it should show:
  - `(.venv) path\BiasTrack>`

If using another IDE or terminal

Manually activate the virtual environment each time:

Windows (PowerShell)	.venv\Scripts\activate.bat
macOS / Linux	source .venv/bin/activate

4. Start the Frontend (Streamlit App)

In a terminal with the environment activated:

```
streamlit run frontend/streamlit_app.py
```

Once the app launches, open your browser and go to: 👉 http://localhost:8501

5. Verification

If the setup is successful, you'll see the **BiasTrack Dashboard** with three main tabs:

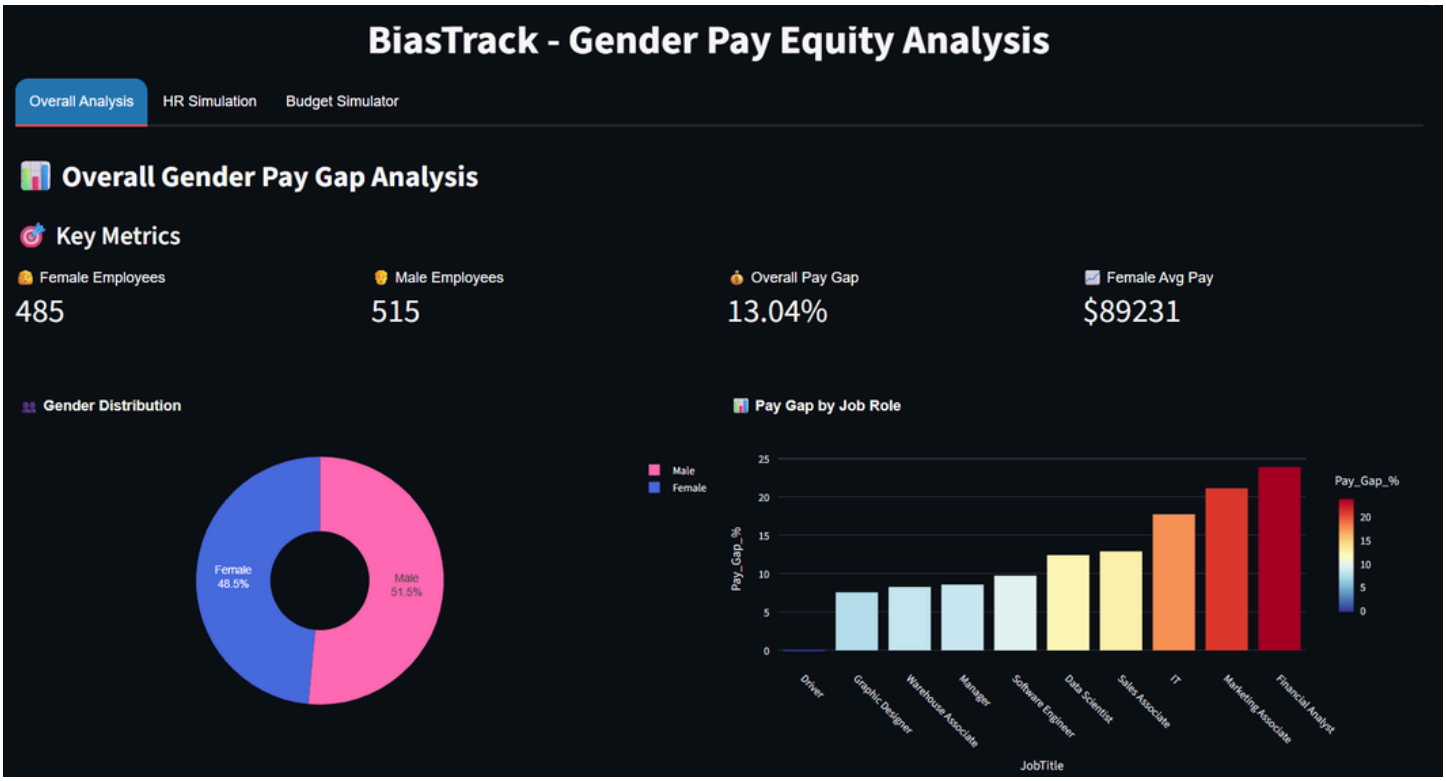
- **Overall Analysis**
- **HR Simulation**
- **Budget Simulator**

Your installation is now complete — you're ready to explore **BiasTrack**! 🎉

User Guide

Dashboard 1 — Overall Analysis

Purpose:
Provides an organization-wide overview of pay equity and highlights disparities across roles and departments.



Detailed Pay Gap Analysis

	JobTitle	Female	Male	Pay_Gap_%
0	Data Scientist	$91192	$102525	12.43%
1	Driver	$95334	$95235	-0.10%
2	Financial Analyst	$89338	$110711	23.92%
3	Graphic Designer	$91555	$98492	7.58%
4	IT	$86797	$102204	17.75%
5	Manager	$89740	$97445	8.58%
6	Marketing Associate	$82437	$99867	21.14%
7	Sales Associate	$88389	$99805	12.92%
8	Software Engineer	$86522	$94953	9.74%
9	Warehouse Associate	$96475	$104452	8.27%

The dashboard automatically visualizes:

- Total male vs female employee distribution
- Average pay gap percentage
- Pay gap across different job roles
- Detailed per-role table showing salary comparisons

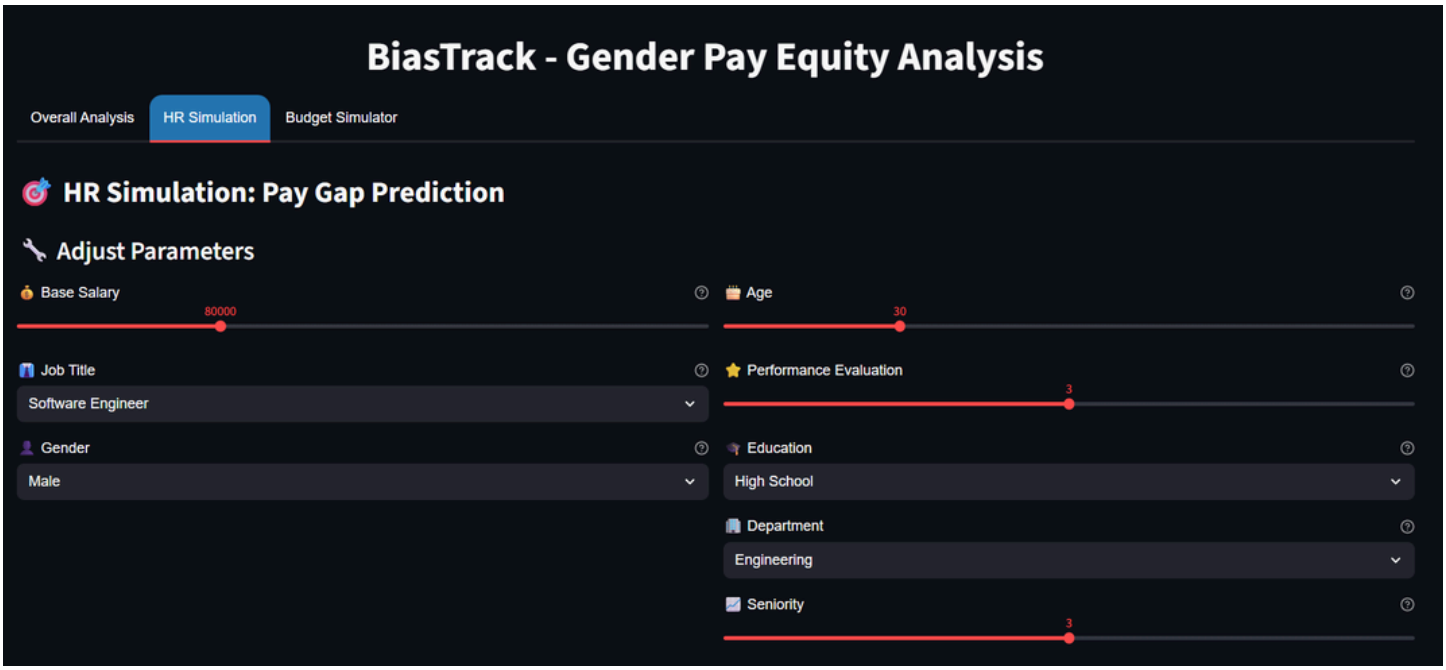
Interpretation:
Use this dashboard to identify which departments or roles show the most significant gender pay gaps and require intervention.

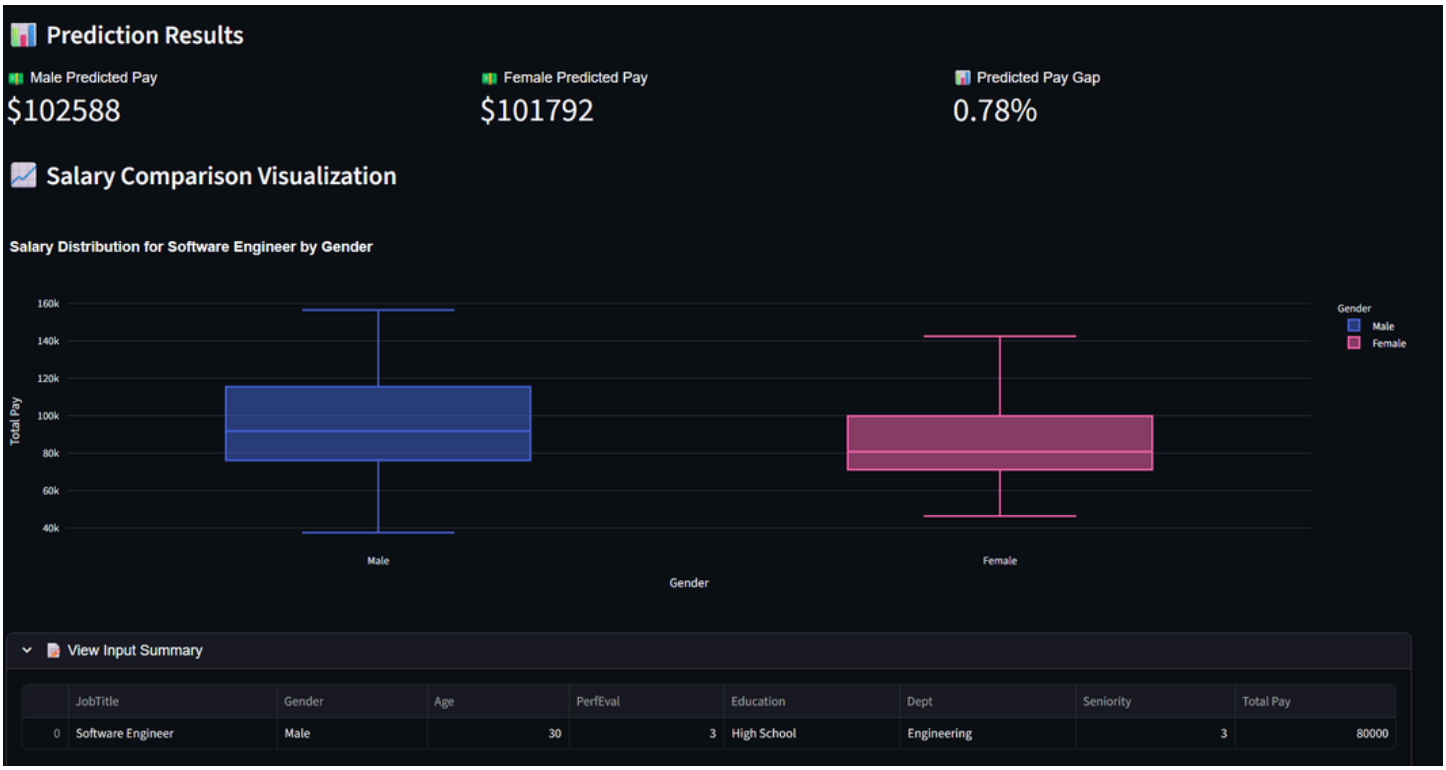
Dashboard 2 — HR Simulation (Pay Gap Prediction)

Purpose:
Simulates potential pay outcomes by adjusting individual or role-level attributes.

How to Use:

1. Go to the **“HR Simulation”** tab.
2. Adjust inputs such as:
   - **Base Salary**
   - **Job Title**
   - **Gender**
   - **Age**
   - **Performance Evaluation**
   - **Education Level**
   - **Department**
   - **Seniority**
3. Results update **instantly** as parameters change, eliminating the need for a separate run action.





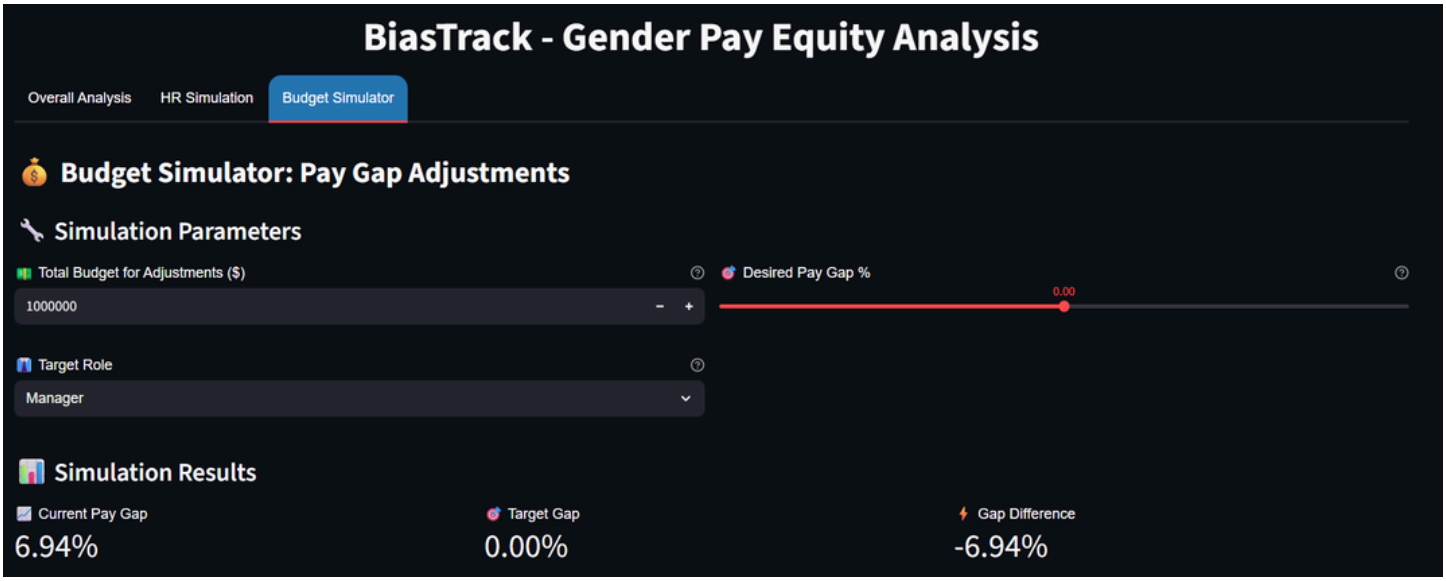
Interpretation:
Use this to test “what-if” scenarios — for example, how promotions, performance improvements, or salary revisions might affect equity.

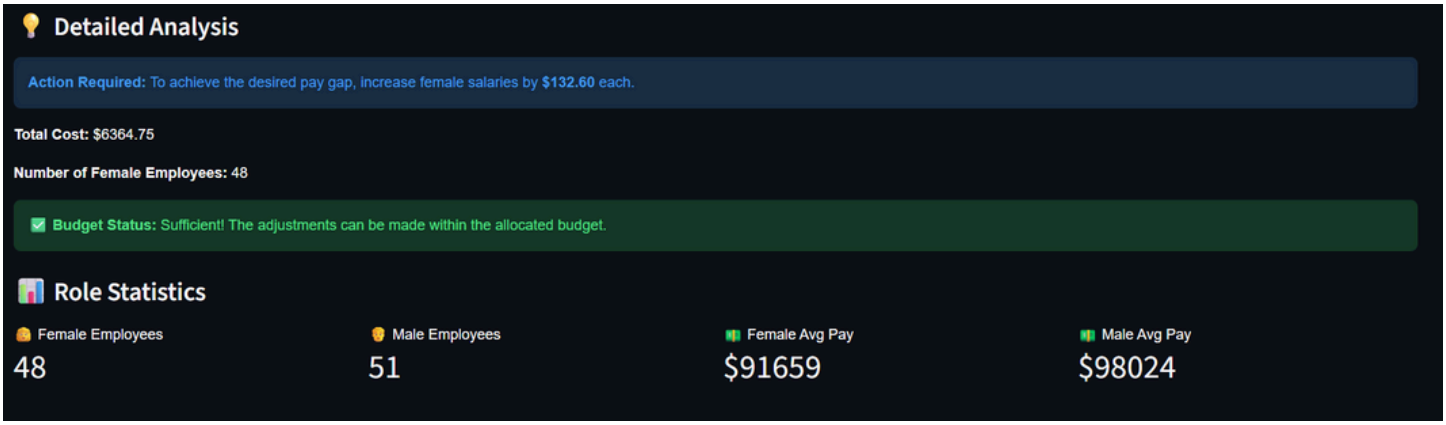
Dashboard 3 — Budget Simulator (Pay Gap Adjustments)

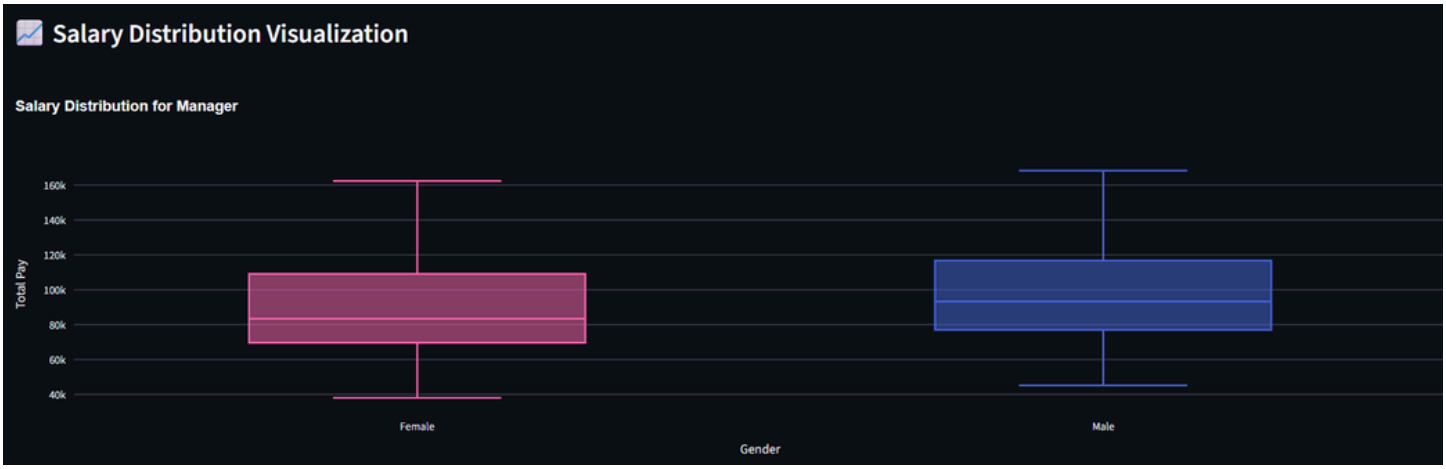
Purpose:
Helps HR professionals evaluate how close they can get to pay equity within a defined budget.

How to Use:

1. Open the **“Budget Simulator”** tab.
2. Enter:
   - **Total available budget**
   - **Target job role**
   - **Desired pay gap percentage**
3. The system calculates:
   - Cost of adjustments to close the gap
   - Whether the budget is sufficient
   - New projected salaries after adjustments







Interpretation:

Use this dashboard to plan realistic, fair salary corrections without exceeding your organization’s financial constraints.