

GatorGrouper: Using Python and GitHub for Team Formation and Assessment

Gregory M. Kapfhammer

 gregorykapfhammer.com

 @GregKapfhammer

 github.com/gkapfham

Challenges

Difficulties in forming software teams:

- Balance knowledge and skills
- Avoid team member conflicts
- Address team member absences
- Accurate and rapid creation of teams

Solutions

Tool to automate team formation:

- Incorporates more sources of data
- Surfaces new combinations of people
- Effectively handles member conflicts
- Saves time and increases accuracy

Algorithms


GatorGrouper forms teams with:


- Random
- Round-Robin
- Kerningham-Lin
- Genetic Algorithm

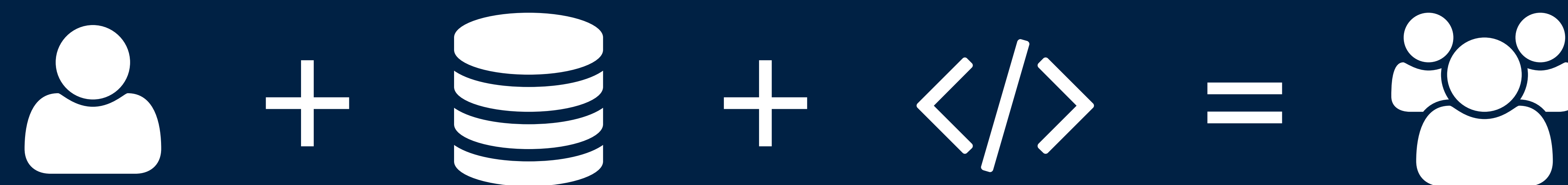
Methods are optimized, ensuring that the tool scales to large input sizes.



ALLEGHENY
COLLEGE

 Even though teamwork is central to software engineering education, forming groups is difficult!

 Ready for classroom adoption, GatorGrouper uses data to automatically form effective teams



Scan the QR Code to
visit our GitHub project!

Development

We adopted these tools and processes:

- Pytest for automated testing
- Pyenv for language management
- Pipenv for environment handling
- Travis for integration and deployment
- GitHub flow for software engineering

Deployment

You can use GatorGrouper these ways:

- Command-line with local storage
- Django-based web application
- Leverage Amazon Elastic Beanstalk

Future Work

Add new features to GatorGrouper:


- Integrate with GitHub Classroom
- Provide new ways to form teams
- Leverage data from GatorGrader
- Accept and use feedback about teams

Considering both industry & academia, use the improved GatorGrouper to empirically study team effectiveness.


Action Steps

Created with Python, GatorGrouper supports team formation while balancing knowledge, skills, and conflicts.

Interested in supporting the development of GatorGrouper? Please raise an issue on the tracker or create a pull request to add a new feature or bug fix.

See  [GatorEducator/GatorGrader](#) for a related tool that automatically checks the work of writers and programmers.

Acknowledgements

Review  [GatorEducator/GatorGrouper](#) for a full list of project contributors.