

Division / Team: GDS / ACE

Brief Description of your Div/ Team:

GDS consists of various clans, Agile Consulting and Engineering (ACE), Digital Design & Development (DCUBE) and GDS-Central.

Teams within ACE and DCUBE manage over 40 products, ranging from citizen-focused digital platforms such as LifeSG, MyLegacy and TraceTogether to business-facing services such as GoBiz, Business Grants Portal and Government Paid Leave System. This also includes workplace productivity platforms such as Digital Workplace (DWP).

GDS-Central teams deliver the Singapore Government Technology Stack and Government Commercial Cloud (2.0) platforms that are used across the whole government. SGTS is made of various platforms and tools such as ADEX, APEX, CStack, CFT, SHIP-HATS, StackOps among others. Find out more about SGTS at developer.tech.gov.sg.

Assessment Title: We are the Champions

Background:

It's the time of the year again when Govtech holds its annual football championship where 12 teams will compete for the grand prize of honour and glory. The teams will be split into 2 groups of 6 where each team will play a match against every other team within the same group. The top 4 teams of each group will then qualify for the next round. The ranking of the teams for each group will be evaluated using these metrics in the following order:

1. Highest total match points. A win is worth 3 points, a draw is worth 1 point, and a loss is worth 0 points.
2. If teams are tied, highest total goals scored.
3. If teams are still tied, highest alternate total match points. A win is worth 5 points, a draw is worth 3 points, and a loss is worth 1 point.
4. If teams are still tied, earliest registration date.

Assessment Instructions:

Basic requirements

Build an application to help the event organisers keep track of results for the first round of the championship and determine the current team rankings within each group. **The application does not need to handle the processing of results for subsequent rounds of the championship.** Your application should:

1. Allow the user to enter team information into a multi-line text input field with the following syntax:

*<Team A name> <Team A registration date in DD/MM> <Team A group number>
<Team B name> <Team B registration date in DD/MM> <Team B group number>
<Team C name> <Team C registration date in DD/MM> <Team C group number>*

...

Example:

firstTeam 17/05 2
secondTeam 07/02 2
thirdTeam 24/04 1
fourthTeam 24/01 1

2. Allow the user to enter match results into a multi-line text input field with the following syntax where each line represents a match played between 2 teams:

*<Team A name> <Team B name> <Team A goals scored> <Team B goals scored>
<Team B name> <Team C name> <Team B goals scored> <Team C goals scored>
<Team C name> <Team D name> <Team C goals scored> <Team D goals scored>
...*

Example:

firstTeam secondTeam 0 3
thirdTeam fourthTeam 1 1

3. Display the current ranking of teams within each group and which teams qualify for the next round based on the match results entered.
4. Allow the user to clear all previously entered data.

Bonus requirements

1. Deploy the web application to a publicly accessible hosting service.
2. Data that is entered should persist across system reboots (e.g. using a relational database).
3. Handle invalid input sensibly.

Sample test cases can be found in the appendix below.

How to submit your answers:

- Your code must be hosted on Github, or any other similar service, in a publicly accessible repository (eg. GitHub / BitBucket / GitLab).
- You may include a section with the assumptions, interpretations you have made about the requirements above or notes on your architecture decisions.
- Do show the progress of your work with atomic git commits.
- Please provide instructions on how to run your source code locally on our laptop in the README file.
- Containers are acceptable - make sure the Docker file is included in the repository.

- Please send us a link to your repository when you complete your assessment via <
<https://go.gov.sg/qds-ace-tech-assessment-form> >

Deadline:

Please complete the assessment within 7 calendar days upon receiving this email. Thereafter, you might be invited for a chat with our tech assessors to discuss your submission.

Grading Criteria:

You will be graded on:

- Readability and code cleanliness
- Good coding practices
- Code structure/design, e.g. modularity, testability
- Correctness of application logic

Additional Notes to Candidates:

- For any questions relating to the assessment, please contact sng_han_jie@tech.gov.sg

Appendix:**Test case #1:****Team information:**

teamA 01/04 1
teamB 02/05 1
teamC 03/06 1
teamD 04/06 1
teamE 05/06 1
teamF 15/06 1
teamG 14/06 2
teamH 13/06 2
teamI 12/06 2
teamJ 11/06 2
teamK 10/06 2
teamL 27/06 2

Match results:

teamA teamB 0 1
teamA teamC 1 3
teamA teamD 2 2
teamA teamE 2 4
teamA teamF 3 3
teamB teamC 0 1

teamB teamD 2 2
teamB teamE 4 0
teamB teamF 0 0
teamC teamD 2 0
teamC teamE 0 0
teamC teamF 1 0
teamD teamE 0 3
teamD teamF 2 1
teamE teamF 3 4
teamG teamH 3 2
teamG teamI 0 4
teamG teamJ 1 0
teamG teamK 1 4
teamG teamL 1 4
teamH teamI 2 0
teamH teamJ 3 0
teamH teamK 3 4
teamH teamL 0 1
teamI teamJ 2 1
teamI teamK 3 0
teamI teamL 1 3
teamJ teamK 1 4
teamJ teamL 0 3
teamK teamL 0 0

Test case #2:

Team information:

teamA 01/04 1
teamB 02/05 2
teamC 03/06 1
teamD 04/06 2
teamE 05/06 2
teamF 15/06 1
teamG 14/06 2
teamH 13/06 1
teamI 12/06 1
teamJ 11/06 2
teamK 10/06 1
teamL 27/06 2

Match results:

teamA teamC 3 4
teamA teamF 1 1
teamA teamH 2 1
teamA teamI 0 2
teamA teamK 1 0
teamB teamD 2 2

teamB teamE 2 1
teamB teamG 1 2
teamB teamJ 1 4
teamB teamL 1 1
teamC teamF 1 3
teamC teamH 2 2
teamC teamI 4 1
teamC teamK 0 2
teamD teamE 3 0
teamD teamG 4 1
teamD teamJ 4 4
teamD teamL 4 1
teamE teamG 3 4
teamE teamJ 0 1
teamE teamL 1 0
teamF teamH 2 4
teamF teamI 2 1
teamF teamK 3 3
teamG teamJ 3 1
teamG teamL 2 1
teamH teamI 1 1
teamH teamK 0 1
teamI teamK 4 1
teamJ teamL 2 1

Test case #3:

Team information:

teamA 01/04 1
teamB 02/05 2
teamC 03/06 1
teamD 04/06 2
teamE 05/06 2
teamF 15/06 1
teamG 14/06 2
teamH 13/06 1
teamI 12/06 1
teamJ 11/06 2
teamK 10/06 1
teamL 27/06 2

Match results:

teamA teamC 3 3
teamA teamF 4 4
teamA teamH 1 1
teamA teamI 3 3
teamA teamK 0 0
teamB teamD 2 1

teamB teamE 3 2
teamB teamG 8 8
teamB teamJ 1 3
teamB teamL 0 0
teamC teamF 3 1
teamC teamH 1 3
teamC teamI 3 3
teamC teamK 1 3
teamD teamE 1 2
teamD teamG 2 1
teamD teamJ 1 4
teamD teamL 4 4
teamE teamG 0 2
teamE teamJ 4 3
teamE teamL 2 2
teamF teamH 1 3
teamF teamI 2 4
teamF teamK 3 4
teamG teamJ 0 2
teamG teamL 3 3
teamH teamI 0 0
teamH teamK 3 2
teamI teamK 0 3
teamJ teamL 4 4