Programming challenge - 2023

International High-Performance Computing Summer School

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EPCC

July 9, 2023

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- These slides will be available on the moodle.

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  - **Maps**: cities are vertices, roads are edges.
  - **Social networks**: individuals are vertices, connections are edges.
  - **World wide web**: webpages are vertices, links between pages are edges.

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- Evaluates the popularity of webpages.
- Uses the number of links pointing to a page as a metric of popularity.
- Critical to the development of Google.

Algorithm

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- Every iteration, each webpage gives an equal amount of its influence to each page it points to, and, conversely, receives influence from other webpages.
- Proportion of the pagerank value allocated to the links moderated by a damping factor.

Termination condition

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- Can run until convergence
- Can run until a certain number of iterations is reached
- Can run until an certain amount of time is elapsed

Your mission

The objective:
Complete as many iterations as possible in that time.

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Awards	Trophees for the winning team.

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Designed to welcome teamwork and social interactions:

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- Good idea to mix with the other track:
  - Without someone from track 2, you are stuck to a single node.
  - Without someone from track 1, you are stuck to CPUs.

Competitiveness

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- If draw in performance, the **earliest** submission wins.

Guidelines for submissions

- Teams of 4 students maximum (1 minimum).

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- Simply **email me** a zipped version of your folder, and the list of team members.

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- This ensures that everybody participates in the same conditions.

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- These slides are available on the moodle, in the programming challenge folder.
- It is possible adjustments or hotfixes be needed at some point, keep an eye on the repository and slack channel for updates.
- If you have a question or are stuck, **do not stay alone** in your corner, check with other students, ask staff members :)

Past feedback

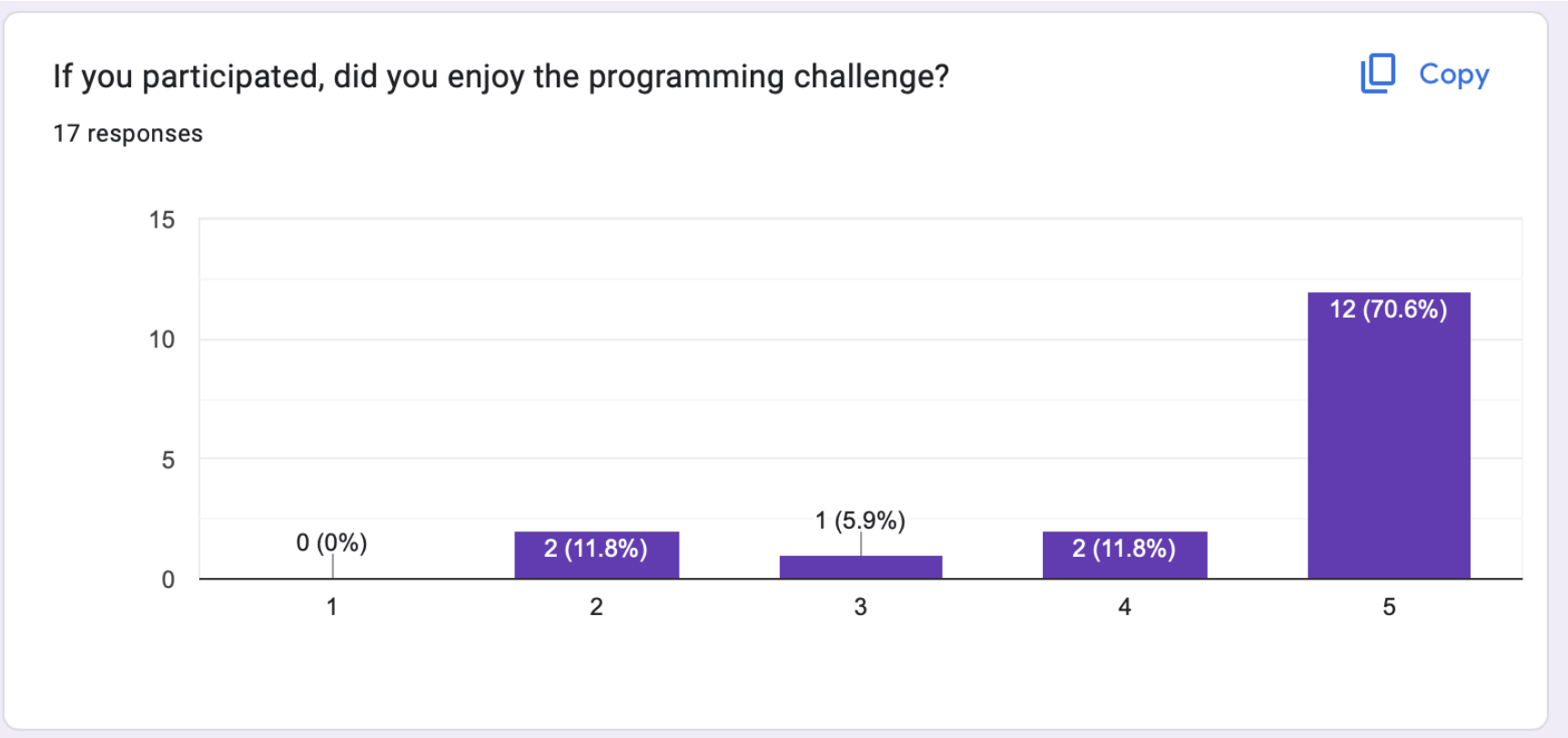

Figure: Feedback from the 2021 cohort.

Past feedback

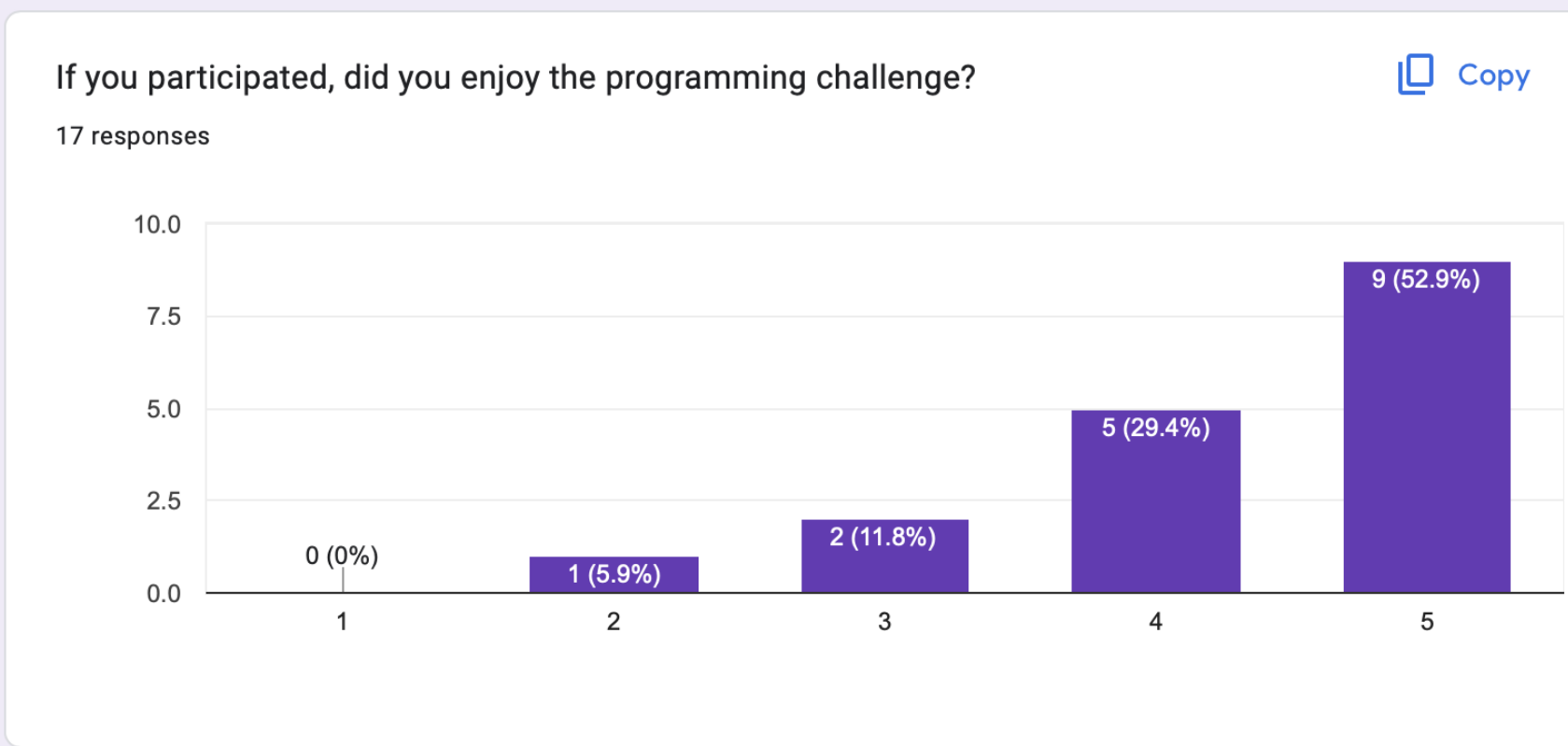

Figure: Feedback from the 2022 cohort.

Past feedback

Any comment, remark, suggestion? Positive or negative, all welcome! :)

15 responses

I was running out of time.

Would have appreciated more time (generic comment I know)

Sorry I don't have time to participate. Still appreciate your effort!

Might try later but not enough time to focus on it during the week

Should be announced earlier in the first day of the sessions

Incredibly well organised. Made it as painless as possible. Didn't do much optimising bc the schedule was busy but it was nice to have a look around and try things

More time!

The way the challenge was presented and explained, the optional participation, all of this was very well done. It would be cool if there was a beginner and advanced track to the competition. As a beginner, the challenge was a bit out of reach, so that combined with the short amount of time, made me decide to bow

Figure: Feedback from the 2022 cohort.

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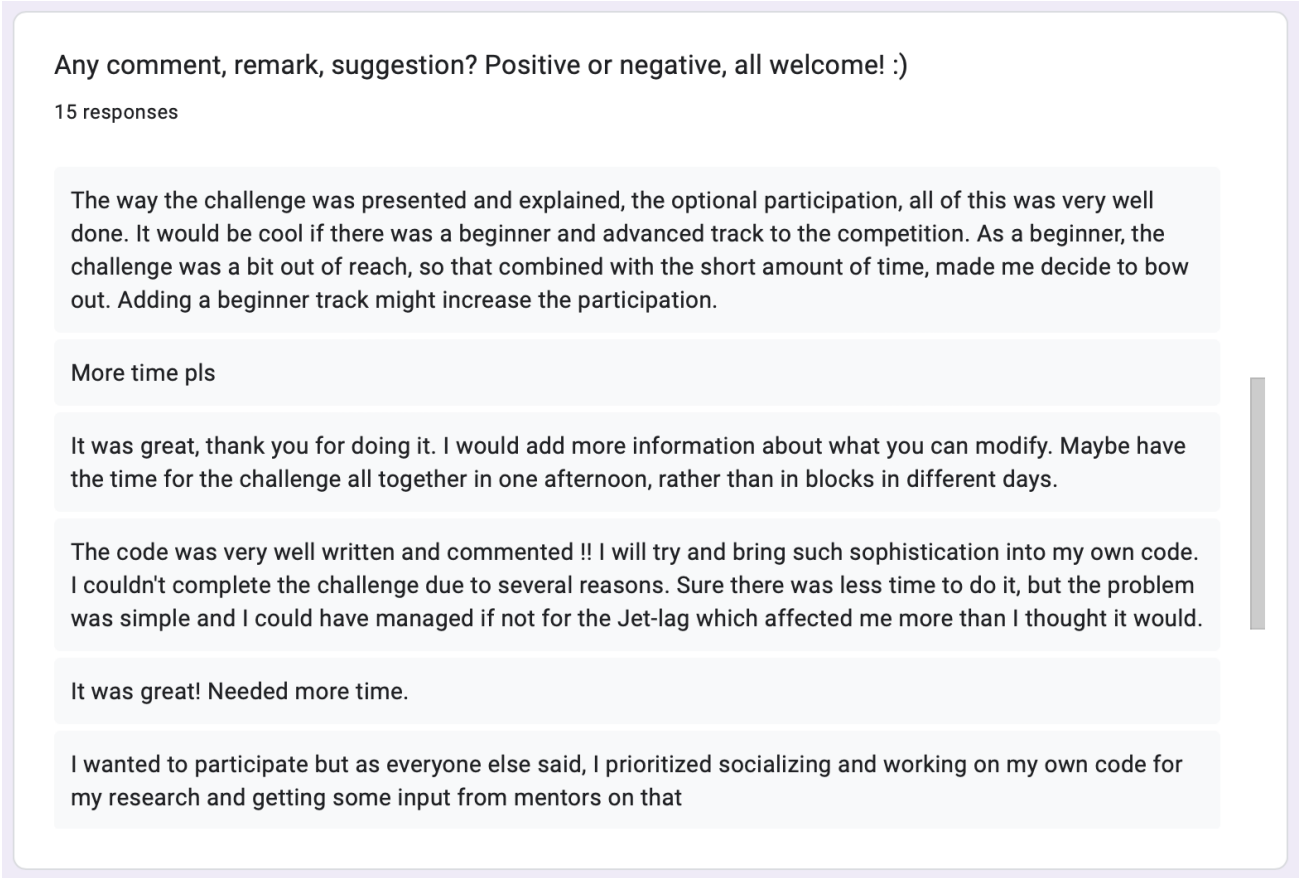

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The way the challenge was presented and explained, the optional participation, all of this was very well done. It would be cool if there was a beginner and advanced track to the competition. As a beginner, the challenge was a bit out of reach, so that combined with the short amount of time, made me decide to bow out. Adding a beginner track might increase the participation.

More time pls

It was great, thank you for doing it. I would add more information about what you can modify. Maybe have the time for the challenge all together in one afternoon, rather than in blocks in different days.

The code was very well written and commented !! I will try and bring such sophistication into my own code. I couldn't complete the challenge due to several reasons. Sure there was less time to do it, but the problem was simple and I could have managed if not for the Jet-lag which affected me more than I thought it would.

It was great! Needed more time.

I wanted to participate but as everyone else said, I prioritized socializing and working on my own code for my research and getting some input from mentors on that

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  - This year it is on the Sunday
- **Your feedback does help us shape future iterations of this summer school.**

Behind the scenes

Name	Owner	Last modified
1.0 September 21, 2022	Jay Alameda	26 Sept 2022 me
2.0 October 5, 2022	Jay Alameda	5 Oct 2022 me
3.0 October 19, 2022	Jay Alameda	21 Oct 2022 me
4.0 November 2, 2022	Jay Alameda	2 Nov 2022 Jay Alameda
5.0 November 15, 2022	Jay Alameda	15 Nov 2022 Jay Alameda
6.0 November 30, 2022	Jay Alameda	30 Nov 2022 Jay Alameda
7.0 December 7, 2022	Jay Alameda	9 Dec 2022 Jay Alameda
8.0 December 12, 2022	Jay Alameda	12 Dec 2022 Jay Alameda
9.0 January 11, 2023	Jay Alameda	11 Jan 2023 Jay Alameda
10.0 January 25, 2023	Jay Alameda	25 Jan 2023 Jay Alameda

Figure: Extract of the list of meetings held to make this IHPCSS possible.

Behind the scenes

Name	Owner	Last modified
10.0 January 25, 2023	Jay Alameda	25 Jan 2023 Jay Alameda
11.0 February 01, 2023	Jay Alameda	1 Feb 2023 Jay Alameda
12.0 February 15, 2023	Jay Alameda	15 Feb 2023 Jay Alameda
13.0 February 22, 2023	Jay Alameda	22 Feb 2023 Jay Alameda
14.0 March 01, 2023	Jay Alameda	1 Mar 2023 Jay Alameda
15.0 March 08, 2023	Jay Alameda	8 Mar 2023 Jay Alameda
16.0 March 22, 2023	Jay Alameda	22 Mar 2023 Jay Alameda
17.0 April 5, 2023	Jay Alameda	10 Apr 2023 Jay Alameda
18.0 April 26, 2023	Jay Alameda	26 Apr 2023 Jay Alameda
19.0 May 3, 2023	Jay Alameda	3 May 2023 Jay Alameda
20.0 May 10, 2023	Jay Alameda	10 May 2023 Jay Alameda

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21.0 May 17, 2023	Jay Alameda	7 Jun 2023 AnnM Backhaus
22.0 May 31, 2023	Jay Alameda	31 May 2023 Jay Alameda
23.0 June 7, 2023	Jay Alameda	7 Jun 2023 Jay Alameda
24.0 June 14, 2023	Jay Alameda	30 Jun 2023 AnnM Backhaus
25.0 June 21, 2023	Jay Alameda	21 Jun 2023 Jay Alameda
26.0 July 5, 2023	Jay Alameda	6 Jul 2023 me

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Welcome

Figure: List of the IHPCSS partners and participants.