BIOINFORMATICS AND OPEN SCIENCE SKILLS MINIPROJECT REPORT

Description.

The Bioinformatics and Open Science Skills (BOSS) mini project marked the third phase of the BOSS Events which was part of the series of events in the "Empowering Researchers with Skills and Tools in Open Science and Bioinformatics". It is a three-week event that gives the trainees a platform to sharpen their bioinformatics, open science and collaborative skills that they were taught through the workshop in the following mini projects:

- Open science in Africa
- Plant genome Analysis
- Viral Analysis
- Metagenomics Analysis
- Open Science Research Data management handbook

Date and Venue.

The mini project meetups took place virtually via the zoom platform all through the stipulated timelines 29th November -17th December. The meet ups took place every Friday where participants showcased their progress. The powerpoint presentation had the following: Brief introduction of the scientific work, workflow, what had been done, challenges experienced and what next. The meet up often started at 11 am EAT where the four groups presented their work within 20 minutes and thereafter 5 minutes of questions and answers.

Participants and attendance.

20 participants(5 for every mini project) were selected from the 36 responses received from the call made. The call was open for 5 days. The selected participants came from countries including Kenya, Tanzania, Uganda and Ghana. The selection criteria were based on their experiences, motivation, and availability. Out of the 30 selected, we had almost 100% consistent attendance during the weekly meetups. From the pre survey, each participant had different experience levels in using high performance clusters (HPC), github and scripting which were crucial during the whole exercise. .

Organizers, Instructors, and Helpers.

The organizers, mentors, and helpers joined in from different countries. Majority come from Kenya. The main mini project organizers were David Kiragu and Pauline Karega from the BHKi team.

We had a total of 4 mentors who offered advice, suggestions and helped in troubleshooting throughout analysis. They included: Bernice Waweru, David Kiragu, Pauline Karega and Kennedy Mwangi. We also had helpers namely Michael Landi, Gilbert Kibet, Festus Nyasimi and Margaret Wanjiku who assisted in various mini projects depending on their research interests and expertise. Detailed information and specific objectives of every mini projects are listed in the miniproject github repository

Agenda.

The organizers agreed and came up with an agenda for each training day that was communicated to the instructors, participants, and helpers as follows:

- Official invitation to be a participant to go out on Nov 18th via email. First email participants of the workshop till Nov 20. Send email to other members Nov 21st
- Allocated timelines:November 29 - December 17, 2021
- Mandatory general introduction meeting on 29th November for mentors and participants. Break out rooms of individual projects for mentors to interact with mentees. Select team lead in every mini project
- Mandatory technical meetings to be conducted within the week as organized by the team lead and participants. To ensure everyone has read and understood the manuscript and all computational tools used in the manuscript.
- Check in meetings on the 3rd and 10th December. To present: Short introduction of the study, objective, challenges or difficulties and the next steps.
- Official and final presentations on December 17th.

Outcome.

Based on a post-survey sent out to participants after the workshop, our participants were moderate to very satisfied with the experience they got during the mini project phase. Major concerns for most of the participants that responded to the post-survey was time allocation, working as a teamwork virtually since not all were committed to the course and working in the HPC since majority of them it was their first encounter. However, the participants responded that the selected manuscript corresponded to common research interest. Nevertheless, the majority of participants appreciated the use of Github as a collaborative tool.

Accessibility of material.

Data was also made available in the miniproject github repository. Individual slack channels for each project were also created for participants to interact with each other and their project leads and ask questions.

Challenges faced

The following are some of the major issues noted during the event:

- For our participants, internet connectivity and power outages were the most common challenges faced by the participants during the weekly meetups.
- Technical difficulties experienced during the event included access to the high performance cluster where a few participants got locked out due to multiple login attempts which resulted in security alerts at the host institution. There were some already pre-installed softwares and some which were missing and they did not have the rights to install them.
- Almost at the end of the event, some participants took advantage of working virtually and they were not active in the course which drained the overall progress of specific mini projects.
- One project was not done, requiring restrategizing to redo the project.

Recommendations.

- More time should be allocated to the event, especially due to intense technicality of some mini projects.
- Prior intensive training on high performance clusters (HPC).