

---

**WHPC OUTREACH REPORT: @ MARANG CJSS**

---

By Molly N. Kgobathe and Boipelo Mosetho



**FEBRUARY 16, 2019**

**WOMEN IN HIGH PERFORMANCE COMPUTING BOTSWANA (WHPC-BW) OUTREACH TRAINING  
UNIVERSITY OF BOTSWANA**

## Contents

<b>1.0 Background</b> .....	2
<b>1.2 Objectives</b> .....	2
<b>1.3 Workshop Sessions Programme</b> .....	2
<b>1.4 Speaker Profiles</b> .....	3
<b>1.5 Training Methodology:</b> .....	3
<b>1.5.1 Teaching Methodology</b> .....	3
<b>1.5.2 Deployment methodology</b> .....	4
<b>1.6 Achieved outcome</b> .....	4
<b>1.7 General Overview of Training:</b> .....	4
<b>1.8 Content Material</b> .....	5
<b>1.9 Training Challenges</b> .....	5
<b>2.0 Conclusions</b> .....	5
<b>2.1 Annexure</b> .....	5

## 1.0 Background

The Women in High Performance Computing Botswana invites the students from our local Community Junior Secondary to a FREE 1 Day outreach workshop on the awareness and basics of High Performance Computing (HPC) services and tools available. Women in HPC (Botswana) is a grassroots, non-profit HPC organization headquartered in Gaborone. The initiative welcomes members from academia, industry and government. Inspired professionals, researchers, educators, amateurs, and armchair HPC advocates are welcome to join an HPC community that brings women in HPC and technical computing together while encouraging them to engage in outreach activities and improve the visibility of inspirational role models. WHPC-BW wishes to expand the use of this service to the wider Botswana community and government.

## 1.2 Objectives

1. Overview of HPC
  - a. what is HPC
  - b. The structure of HPC
2. Benefits of HPC
  - a. why use paralleling programming
3. Careers in Information technology
4. Conclusions

The outreach workshop pursued to provide awareness to the HPC service, tools and environments and also to provide the benefits and careers offered by this area for grass roots level.

## 1.3 Workshop Sessions Programme

**Date:** 17<sup>th</sup> February 2019 **Venue:** Marang CJSS, Classroom **Cost:** FREE to attend (invite only!)



The image shows a workshop programme schedule for Women in High Performance Computing Botswana. On the left, there is a logo for WHPC (Women in High Performance Computing) with the word 'Workshop' written in a cursive font below it. To the right of the logo, the workshop details are listed: Time: 1030AM – 1200 NOON, Date: 16 February 2019, and Venue: Marang Community Junior Secondary School. On the right side of the image, there is a table with the workshop sessions and their respective speakers. The table is titled 'WOMEN IN HIGH PERFORMANCE COMPUTING BOTSWANA' and lists the following sessions:

Time	Session	Speaker
10:30 - 10:35	Welcome Remarks	Nonofo
10:35 - 10:40	Ice breaker	Onneile & Molly
10:40 - 10:50	HPC Structure	Molly
10:50 - 11:00	HPC Structure	Onneile
11:00 - 11:10	HPC Benefits	Boipelo
11:10 - 11:20	Careers in HPC	Elizabeth
10:20 - 11:30	Conclusion	Banyana
11:30 - 11:45	Questions & Answers	
11:45 - 11:50	Vote Of thanks	Student Representative
11:50	Refreshments	

## 1.4 Speaker Profiles

1. **Ms Nonofu Mogopodi** holds a BSc with a speciality in Mathematics. She is a mathematics teacher at Marang Community Junior Secondary School. She is a member of the HPC founding team.
2. **Ms Onneile Tibi** is a BSc, MSc Computer Scientist from the University of Botswana. She is a computer technician at the computer science department, University of Botswana. She is a member of the HPC founding team.
3. **Ms Molly Kgobathe** is an MSc Computer Information Systems researcher and a Teaching Assistant in the Computer Science Department at University of Botswana. Her research interests include Computers in Education, Data Science, Data Warehousing, HPC, and Cyber security. She currently assists in teaching undergraduate courses in Information and Communication Technologies, data structures and database concepts. She is a member of the UB\_CS\_HPC team, SADC HPC Ecosystems and a co-founder of WHPC Botswana. Molly is an HPC enthusiasts.
4. **Ms Boipelo Mosetho** is an MSc in Computer Science researcher and a Teaching Assistant in the Computer Science Department at University of Botswana. Her research interests include computer simulation, Machine Learning, performance evaluation of communication networks, systems analysis, distributed and parallel processing, NRENs and HPC. Boipelo received her Degree in Computer Science from the same University of Botswana. She is a member of the UB\_CS\_HPC team, SADC HPC Ecosystems and a co-founder of WHPC Botswana.
5. **Ms Elizabeth Arone** is Science researcher and used to be Teaching Assistant in the Computer Science Department at University of Botswana. Her research interests include computer networking simulation and NS2 &3.
6. **Ms Banyana Racheal Daniel** is an HPC enthusiasts. She is an MSc in Computer Information Systems researcher and used to be a Teaching Assistant in the Computer Science Department at University of Botswana. She is currently a primary school teacher at Legae Academy, in Gaborone. Her interests include Computer Science Education and systems technology.

## 1.5 Training Methodology:

### 1.5.1 Teaching Methodology

The Workshop Training was conducted in Marang Community Junior Secondary School Classroom No: 24, Broadhurst, Gaborone in February 16, 2019. Six trainers of the Women n HPC –Botswana conducted this outreach training. The workshop training was advertised via posters and flyers (to students and teachers). All the participants registered on an attendance register where they reserved a seat for the workshop (80 spaces were available). These participants had interest and passion in technology first. Since each potential participant were from the different education group and skill level, also the training was of the 1<sup>st</sup> kind to group students to come and explore the introduction and awareness of HPC facility together, so same

type and level of training curriculum would not be feasible for all. The training method was lecture method, presentation and discussions.

### **1.5.2 Deployment methodology**

This workshop was a one day training, divided into one session. In its Initial phase, the trainers were to layout the platform and introduce technology in general, make the participants feel comfortable with the use of computers and the HPC facility. The 6 trainers together managed to do presentations while engaging the participants on a discussion on the HPC technology as well as usage. In the end training a minimum of 80 students participated in the workshop.

Before going into the main training, the workshop trainers had prepared pre-workshop assessments to infer the expertise level and interest of the learners. We asked them mostly questions regarding how familiar they were with the computer technology and how familiar they were with any operating systems environment. To rate their Linux skills, 0% of our participants expressed that they had no experience in programming environments. They had no clue about HPC.

### **1.6 Achieved outcome**

The students appreciated this technology and were willing to advance their skills in terms of further training towards HPC. The advantages of HPC was a mind opener to them. As such some showed interest in HPC careers. All participants were enthusiastic that the world of reporting could be a lot easier if everybody had the glimpse of this technology. All end-users could be able to achieve their research aims by doing computational tasks and deploy that knowledge to their local demand. Most of them suggested the need to incorporate this training to the current school curriculum.

### **1.7 General Overview of Training:**

The main objective was to raise awareness by deploying knowledge on HPC to various grassroots level community such as the CJSS where HPC technology unheard of. Local schools have limitations as the computer awareness curriculum is also limited. During this training the students and enthusiasts experienced some more critical issues of HPC training. Among them, some are listed below:

- Lack of Computing facilities and computer know how.
- Limited computer science / awareness curriculum.
- The participants initially mentioned that they were interested in a broad range of careers not aware of how their interests were related to HPC.
- The students' level ranged from form 1 to form 3.
- Most of the participants emphasized the need for further hands on training for them to visualise and acknowledge the concepts.

## 1.8 Content Material

Refer to the attached presentation slides.

## 1.9 Training Challenges

The main problem for the training was that we didn't have access to the computer lab facility, no projector and not enough handouts, and as such the students were sharing.

The audience was made up of participants. Meals and refreshments were a challenge as they were not provided only towards lunch, most of the participants wanted the sessions to be divided into two so towards lunch time most of them wanted to leave quickly. Some couldn't complete the training due to some personal reasons.

## 2.0 Conclusions

In a nutshell the training went well according to the discussion and feedback forum. Most of the participants strongly agreed that the training has met their expectations and acknowledged that they would be able to research more on the knowledge learnt. Most of the participants indicated that the environment was not conducive for the workshop and time was too short for presentations. They emphasised that there was flow in the training as the trainers knew their content. There is a need for further hands on training and perhaps a tour to see this HPC structure to address the participants' needs.

## 2.1 Annexure



Figure 1. WHPC Botswana (Left to right: Banyana, Molly, Elizabeth, Boipelo, Onneile, Nonofa)



*Figure 2: Banyana in action*



*Figure 3: The students looking at the slides handout.*



*Figure 4: Boipelo explaining concepts*



*Figure 5: Onneile familiarising the students to the background of computer technology.*



*Figure 6: Elizabeth touching on the career opportunity in HPC.*



*Figure 7: Molly introducing WHPC and the benefits of HPC.*



*Figure 8: The Marang CJSS HPC enthusiasts with WHPC-BW.*