# HI4K 2021 Bootcamp Overview

# Introduction

**Background**

As part of building a community of Health Informatics software developers, the HealthIT project supports an annual Health Informatics for Kenya (HI4K) Bootcamp hosted at the University of Nairobi, School of Computing &Informatics. The target participants are Computer Science/ICT/IT (or related fields) undergraduate students from Kenya Universities.

**Overall Objective:**

To build local Health Information Systems technical capacity for the dynamic Kenya Health Sector

**Expected Outputs:**

1. University students equipped with excellent knowledge and systems development skills in Health Information Systems (HIS) and Electronic Medical Records (EMR)
2. Successful completion of selected tasks based on: DHIS2-KHIS, KMHFL, Health Commodities Dashboard and Kenya-EMR
3. Complete Applications/prototypes for use by the HIS sector
4. Qualified local capacity for continual support of Health Information Systems in Kenya

**Bootcamp objectives**

* Provide an opportunity for students to closely interact and learn from HIS experts
* To create a practical learning environment of health information systems software development skills for DHIS2, EMRs and KHMFL
* Expose students to Organization the Kenya Health Sector, Health Information Systems Policies, Standards, Interoperability, Privacy and Security, health data (Indicators, reports and data elements) etc
* Expose the student to real HIS challenges and engage them in solving the same

# Bootcamp Schedule

WEEK 1 - Introduction to health informatics

* Introduction to Health Informatics and the current state of the country in health informatics and the direction it's going.
* Highlight on the problems that are there in health and why they haven't been solved to date and the current approaches being used
* Introduction to systems that are there in health informatics, their history and purpose in health informatics.
  + DHIS2-KMHFL
  + KENYAEMR
  + DHIS apps: HCD
  + DAP
* Systems Overview of the health systems available above which are mainly DHIS2 and OPENMRS and their base structure and technologies that they utilize
* Learn on technologies that are being utilized by systems in Health
  + Programming practices
  + Frameworks
  + Open source development
* Students expected to use the tools that they have learnt to do a mini project to show competency on the tools.

WEEK 2&3 - Problem Definition, task allocation and evaluation

* Students are given tasks that are currently a problem in the market with consultations with partners in the field.
* Students are expected to form groups on the problem that they feel best solving. They are expected to discuss the problem in length and come up with different approaches to solve the problem.
* Students are to show how to solve the problem and the method that will use to solve the mentioned problem with the technologies available.
* Groups are partnered with mentors of the tasks to discuss and see a feasible solution which they present to a panel to highlight the strength of their solutions.
* Individual students’ evaluation
* Guidance by facilitators and mentorship by different stakeholders
* Evaluations by facilitators of the different projects

WEEK 4

* Evaluations of the different projects
* Final presentation is made by the different groups

# Bootcamp Program

**2nd-27th August 2021**

**Venue: University of Nairobi, School of Computing & Informatics**

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| **Week 1** |  | **Activity** | **Breakdown** | **Facilitator** |
| Day 1 | 8:30-9:00 AM | Registration |  | UoN-Health |
|  | 9:00 – 10AM | Role of Health Informatics In Kenya | -MoH  -HIS Strategy and role of innovation in Health | MoH – Head HIS |
|  | **10.30-11:00 AM** | **Break** |  |  |
|  | 11:00-11:45 |  | Overview of DHIS, KHIS,KMHFL | MoH |
|  | 11:45 AM-1:00 PM | EMRs in Kenya | Background and current status  &  EMRs | Partner  MOH - Mumo |
|  | **1:00-2:00 PM** | **Lunch** |  |  |
|  | 2:00 PM-2:45PM | Introduction to DHIS | Introduction to KHIS System Setup (Servlet container, Linux server) | UoN |
|  | 3:00PM-4:00P, | Introduction to KMHFL | Introduction to KMHFL  Technologies and APIs | UoN |
| Day 2 | 8:30 AM-11AM | Introduction to KenyaEMR+ & Demo | -Introduction to OpenMRS  - OpenMRS community  -Kenya EMR+  - KenyaEMR+ modules overview | UoN |
|  | **11:00-11:30 AM** | **Break** |  |  |
|  | 11:30 AM-1:00 PM | KenyaEMR Setup | Conceptual design overview  Demos | UoN |
|  | 2:00-5:00PM | KenyaEMR+ | Overview of KenyaEMR+ tasks | UoN |
| Day 3 | 8:30-11:00 AM | Introduction to DHIS 2(contd) & Demo | -DHIS2 Architecture  -Interoperability concepts | UoN |
|  | 11:00-11:30 AM | Break |  |  |
|  | 11:30 AM- 1:00PM | Introduction to KHIS | KHIS Terminologies  -DHIS Terminologies (data elements etc)  -MOH core data forms  - Demo | UoN |
|  | **1:00 PM-2:00 PM** | **Lunch** |  |  |
|  | 2:00 PM-3:00 | KHIS 2 tasks | KHIS Problem set presentation | UoN/MoH/Partner |
| Day 4 |  | KMHFL | Introduction | UoN |
|  |  | Break |  |  |
|  |  | KMHFL | Development Framework  API development frameworks - | MoH |
|  |  | KMHFL | Problem Sets | UoN |
| Day 5 |  | HCD | - | UoN/MoH |
|  |  | Break |  |  |
|  |  | HCD |  | UoN |
|  | 4:00PM-4:30PM | Tea Break |  |  |
|  |  | Recap the week activities |  |  |
| **WEEK 2** |  | **Week 2 Activity summary** |  |  |
| Day 1 | 8:30AM- 11:00AM | Tasks allocation | Problem sets review(KHIS, KMHFL, HCD)  Team Allocation(Group of 5 pax) | UoN |
|  | **11:00-11:30 AM** | **Break** |  |  |
|  | 11:30-1:00PM | Setup | Review of dev environment set up, review of tools  Development of project plan |  |
|  | **1:00-2:00PM** | **Lunch** |  |  |
|  | 11:30 AM-1:00PM | Team WORK | Teams Problem case definition: statement of problem, Action plan and subtasks definition and assignment | UoN/MOH |
|  | **1:00-2:00PM** | **Lunch** |  |  |
|  | 2:00- 3:30PM | Team Work | Mentorship and guidance on action planning |  |
|  | 3:30-4:30PM | Teams Presentation | *Presentation by teams* |  |
| Day 2 | 8:30 AM- 10:30 AM | Data quality | Development work | UoN |
|  | **10:30 AM-11:00 AM** | **Tea Break** |  |  |
|  | 11:00 AM-1:00 PM | Mentorship and Guidance | Video Conference with tech developer mentor for each team | UoN(Nicholas/Oliver/Ambrose) |
|  | 1:00-2:00PM | Lunch |  |  |
|  | 2:00-5:00PM | Team work | * Development |  |
| Day 3 | 8:30-10:30 AM | Team work | Development | UoN |
|  | **10:30-11:00AM** | **Break** |  |  |
|  | 11:00-1:00PM | Project progress | Team presentation on project/tasks status |  |
|  | **1:00-2:00PM** | **Lunch** |  |  |
|  | 2:00-5:00PM | Team Work | Development |  |
| Day 4 | 8:30-11:00AM | Team work | Development |  |
|  |  | Break |  |  |
|  | 11:00-1:00PM | Team work | Development |  |
|  | **1:00-2:00PM** | **Lunch** |  |  |
|  | 11:00-1:00PM | Team work | Development |  |
|  |  |  |  |  |
| Day 5 | 8:30-10:30 | Team Work | Development |  |
|  | **10:30-11:00 AM** | **Tea Break** |  |  |
|  | 11:00-1:00 PM | Mentorship and Guidance | Video Conference with tech developer mentor for each team | UON |
|  | **1:00-2:00PM** | **Lunch** | Apps activity |  |
|  | 2:00-3:00 PM |  | Preparation for Milestone 1 Evaluation |  |
|  | 3:00-5:00 PM | Team Work | Development |  |
| **WEEK 3** |  | **Week 3 Activity summary** |  |  |
| Day 1 | 8:00-9:30AM | Team Work | Development | S |
|  | 9:30-11:00 AM | Milestone 1 Evaluation | Team presentation on project progress, Evaluation by mentors | UoN |
|  | **11:00-11:30 AM** | **Break** |  |  |
|  | **11:30-1:00PM** | **Lunch** | Guidance and mentorship of individual teams |  |
| Day 2-5 | 8:00-10:30AM | Team Work | Development |  |
|  | 10:30-11:00AM | Break |  |  |
|  | 11:00-1:00PM | Team Work | Development |  |
|  | 1:00-2:00PM | Break |  |  |
|  | 2:00-5:00 PM | Team Work | Development |  |
| **WEEK 4** |  | **Week 4 Activity summary** |  |  |
| Day 1 | 8:30-9:30 | Team Work | Development |  |
|  | 9:30-10:30 AM |  | Video Conference with tech developers | UoN |
| Day 2 | Team Work | Development | Team Work |  |
| Day 3 |  | Milestone 2 Evaluation | Team presentation on project progress, Evaluation by mentors |  |
| Day 4 |  |  | Techpreneur talk  Preparation for final presentation |  |
|  |  |  | Group projects |  |
| Day 5 |  | **Closing of Bootcamp** |  | UON/MOH/Partners |