جامعة أبوظبي
ABU DHABI UNIVERSITY

MINISTRY OF HEALTH

Proposal

Java Programming for the Internet
(CSC311)

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Section 22&66

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ID NUMBER	NAME	WORK DONE
1070332	SAEED ALHAMOUDI	INTRODUCTION
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Introduction

Computers had drastically changed the face of human civilization development since the first computer (ENIAC Machine) was built. As per Science Daily.com The multidisciplinary team, led by Texas A&M chemist Sarbajit Banerjee in collaboration with Texas A&M electrical and computer engineer R. Stanley Williams and additional colleagues have discovered an inorganic element. This element can replicate the neuron switching mechanism, which is found in the human brain (Texas A&M University, 2020).

Advancements in technology have been so crucial such that it helps in tasks ranging from simply checking the pulse to complex functions like genetic splitting, which are all vital in today's successful medical developments. These complex tasks are done by sophisticated computer programs to make these feats possible in the field of medicine. We have advanced so far so much that we often forget the small problems which could have been resolved if the proper implementation of proper and creative solutions using the current technology at our disposal.

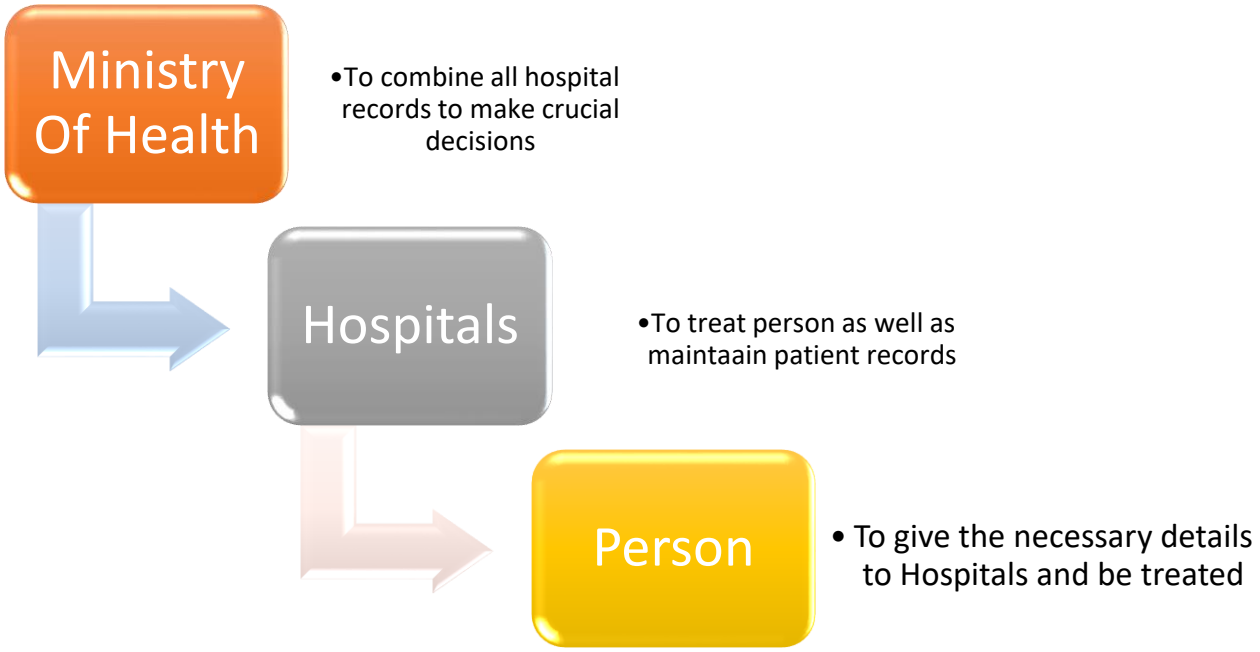
The recent outbreak of the Coronavirus (COVID - 19) has stumbled the lives of all people for forcefully being in-home quarantine throughout the globe. This pandemic took a massive toll on every system and mostly the health and the education sector. Coronavirus (COVID - 19) is not the first pandemic caused, and there were specific common points noted between the other epidemics like SARS.

Kevin, Saeed, Fatima currently taking Java Programming for the Internet (CSC311) taught by Dr Adel Khelfi in Abu Dhabi University decided that if any solution can be put into action. They being programmers there first instinct to be analyzed between the previous similar pandemics and what could have been the fault in the controlling. Our primary finding is a lack of coordination of the current system trackers for infected patients. The second finding was that the handicap of technical resources to automate the processes in real-time. The third and last most problem being was a there was never a "Doom's Day" system set up in case of global crisis.

Implementation Research

This being the situation a system that has to be made and modified on existing solutions available in this time. A ministry level project is what is to be implemented. Similar to the successful fire alarm project "Hassantuk" which connects all building's fire alarm systems with Ministry of Interiors and Fire Department which cuts down already the record-breaking speeds to diminish fire accidents (Ministry Of Interiors, n.d.).

The tools to be implemented is the course material taught in Java Programming for the Internet (CSC311). These tools would also include the use of the Eclipse which is an Integrated Development Environment and Java programming language which also enables Graphical User Interface combined with advanced concepts of multi-threading, and parallel programming merged with basic core concepts of objects, classes, inheritance and polymorphism facilitated with networking. The data types we expect to deal with are mainly Integers, Double, Date, Characters or Combination of Characters (String). We are also hoping to create an interactive and user-friendly Graphical User Interface by maximizing customization to reach a certain attractive aesthetic level as well as use the various components provided by JavaFX package. The reason being it contains much more vibrant graphics similar to Cascading Style Sheets (CSS) which is used in Rich Internet Applications (RIA) (Pawlan, 2013). Lastly is the implementation of networking to interconnect all the components.



The above illustration is the simplified base structure for the implementation of the inheritances of our classes. Person is the ultimate superclass, where all information like Name, Age Date of birth is to be stored. This information will be requested by Hospitals class to diagnose. If a particular disease is increasing beyond the threshold, the Ministry class will

be notified to take further action. The data access modifiers will be decided accordingly per class but mostly is private access with the particular get/set methods.

Issues based on current and forecast scenarios

The first and foremost issue faced would be internet downtime and the data being lost during the downtime. Loss of data would lead to wrong results that would be required to make crucial data on the scenario. The second issue is there is no connection between Person to Hospital nor Hospital to Ministry as what they think is that what they can only see is the maximum scope. For example, if one Person has diabetes in one hospital, the hospital and Person only thinks that only one person has diabetes. Still, there are others as well, but no decision would have been taken if no notification was there of the increased numbers to one central unit. The third issue is any software being implemented is not user-friendly to the responsible users as they require a tremendous learning curve and unexpected program errors or crashes occur due to wrong inputs. Lastly is privacy concern such that anyone can access anyone's confidential data which would be a breach of privacy which is of enormous concern to many.

Solutions to current and future issues

A proven system that is currently used is "Hassantuk" as it connects all building's fire safety system which cuts down the record-breaking time for the fire department to extinguish the fire. The notifications are broadcasted to simultaneously to the nearby emergency response centres and Ministry of Interiors with almost 0 percentage downtime with verification of legitimacy in less than 120 seconds. Our solution is deeply inspired by the base model of Hassantuk's hierarchy of connection of inheritance (Ahmad, 2018).

First and foremost, by any downtimes of the internet; data entered during the offline time shall be stored by the program offline until back online for more accurate and precise tracking. Secondly, each level of hierarchical data shall be stored and interconnected in the form of subclasses and superclasses with concepts of inheritances and polymorphism. The application will be a user-friendly Graphical User Interface with a quick learning curve. Specialized code will be implemented to prevent the program from crashing either by implementing if..else statements or try... catch statements. Lastly, confidential details of Person shall be saved as private attributes and shall only be accessed with the respective get.. method.

Future recommendations would be the addition of other attributes like heart rate, spO2 etc. that determines a person vitals and must be connected with the emergency service so that they can act quickly if something were to happen to a person. Another implementation would be a person's activity levels being directly sent to his/her doctor for even more fine-tuning treatment. These implementations would mean more efficiency with personalized care.

References

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