PROJECT TOPIC

**SHE’RO COMMUNITY SOLUTIONS**

**Using technology to respond to**

**Gender-Based Violence**

*“Tech Solving Social Issues!”*

**(GROUP 8)**

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1. Abstract

She’ro app is a mobile reporting system that has the interest of victims of violence in mind. What if there was a panic button that a woman can press, that signals red and alerts everyone in the chatbox that there’s a woman in trouble in the vicinity and within a matter of seconds even if she cannot make the call herself, a system has been alerted, her GPS location is tracked and the nearest community task force is sent to the rescue

What if there was a software an application that can be easily downloaded compatible with most phones, minimal data usage, whereby the mere pressing of a button if it’s too unsafe for the woman to call or text, the artificially intelligent online watcher sends a notification to a designated taskforce in a telecommunications company, that alerts the security service or police to attend a woman in trouble at a certain location. This project would bring succor to many as well as provide an enhanced available gender-based violence reporting system that is safe access to all.

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Problem statement

Despite the laudable achievement of globally and locally in the women’s rights liberation movements and gender affairs economically, constitutionally, and politically; The fact remains that a sizeable number of women and girls are still susceptible to violent crimes, sexual assaults, and non-sexual contact violence or physical violence.

The Covid-19 pandemic researches exposed the degree of its severity (a handful of women particularly in countries under research in Africa died due to intimate partner violence) and how much there is still exceedingly more room for much to be done to actualize progressively the multi-dimensional development as well as the social welfare of women. Despite the lockdown, the number of sexual crimes against women seems to be on the increase according to South Africa Police records and data from South Africa.

We assume these data were correct and the sample data from Nigeria is a true representation of the population.

There is a need for an active reporting system that can be both active, anonymous if need be and act as a medium for emergency report purposes.

## **Hypothesis**

* There are not enough reliable and safe reporting channels for intimate partner abuse
* Women have no access to information about their rights and the support they can get with issues regarding gender-based violence
* Covid-19 along with its restrictions catalyzed the increase in domestic and gender-based violence

Project in conjunction with Women Techsters goals

**This project focuses on the achievement and support of the following SDG Goals.**

* SDG 5: Achieve gender equality and empower all women and girls: Women and girls, everywhere, must have equal rights and opportunity, and be able to live free of violence and discrimination. Women’s equality and empowerment are one of the 17 Sustainable Development Goals, but also integral to all dimensions of inclusive and sustainable development. In short, all the SDGs depend on the achievement of Goal 5
* SDG Target 5.2 Eliminate all forms of violence against women and girls
* SDG Target 16.1 Significantly reduce all forms of violence and related death rates everywhere

**Project Objectives.**

To innovatively provide a technological solution to a social issue affecting women and girls, particularly gender-based violence and intimate partner abuse through engaging data science, analytics, and programming tools. The process is broken down into three phases

* To conduct a deductive data analysis of abused women and girls during post the enforcement of Covid-19 restrictions & lockdowns zeroing in on countries with data availability in Africa, Nigeria being the largest sample size, zooming in on Egypt, Ghana, South Africa, Kenya.
* To develop a reporting system that populates a database, collecting data in form of reports that narrates their witnessing of or experience with abuse and intimate partner violence, collecting data demographics as well as key information like mode of abuse and frequency.
* To develop an intelligent technology in form of an application linked to the reporting system database, which not only reports imminent violence but operates as an emergency hotline and responds to a woman who expresses active and urgent distress and solicits relevant help by sending the woman’s geographical coordinates to the right authorities.

Lastly to use data collected through the reporting system for predictive analysis and report writing to sponsor preventative measures through engaging the right partners; governmental and private who are aligned with causes for women’s social issues and gender affairs

**Methodology**

**Background**

“The outbreak of COVID-19, emerging data and reports from those on the front lines, have shown that all types of violence against women and girls, particularly domestic violence, was reported to have intensified according to the United Nations Women report which sites violence against women as the Shadow Pandemic growing amidst the COVID-19 crisis.

Facts according to UN Women 2020

* Globally, even before the COVID-19 pandemic began, 1 in 3 women experienced physical or sexual violence mostly by an intimate partner
* Emerging data showed an increase in calls to domestic violence helplines in many countries since the outbreak of COVID-19.
* Sexual harassment and other forms of violence against women continued to occur on streets, in public spaces, and online.
* Survivors were reported to have limited information and awareness about available services and limited access to support services.
* In some countries, resources and efforts were diverted from violence against women's response to immediate COVID-19 relief.

Hayley Boxall, Anthony Morgan, and Rick Brown in their research paper also sited that Since the first case of the novel coronavirus (COVID-19) was confirmed in Australia in January 2020, both the disease and the measures implemented to limit its spread have had significant impacts on the day-to-day lives of Australians. In the past few months, there have been numerous media reports about the risks to the safety of victims of domestic violence (intimate partner violence), including concerns about an increase in violence, more complex forms of violence, and the impact of social distancing measures on the ability of victims to seek help (Morton 2020; Nancarrow 2020; Pfitzner, Fitz-Gibbon & True 2020).

Various factors have been identified as contributing to a potential increase in both the prevalence and severity of domestic violence during the COVID-19 pandemic, including:

• Victims and offenders spending more time together; • increased social isolation and decreased social movement, which may restrict avenues for women to seek help;

• Increased situational stressors associated with domestic violence (e.g. financial stress and job insecurity); Statistical Bulletin 28 Australian Institute of Criminology 2

• offenders feeling out of control due to situational factors and using violence and abuse as a means of creating a sense of control; and

• increased alcohol consumption among domestic violence perpetrators (Delaney 2020; Morton 2020; Nancarrow 2020; Payne, Morgan & Piquero 2020).

There is a lack of research into the prevalence of domestic violence among Australian women since the start of the COVID-19 pandemic. Given the majority of women experiencing violence and abuse within their relationships do not engage with police or government or non-government agencies—particularly while they remain in a relationship with their abuser—this is a significant knowledge gap (ABS 2017). Relatedly, there are concerns that opportunities for women to contact and engage with domestic violence services or the police have been even more constrained during periods when social movement was restricted (Fitz-Gibbon & Meyer 2020). There are particular concerns about the safety of women experiencing coercive controlling behavior (Pfitzner, FitzGibbon & True 2020).

Africa Union Commission in their 2020 joint research paper on Gender-Based Violence in Africa during the COVID-19 Pandemic cited the following

Kenya, according to the Kenya National Council on Administration of Justice, there is a significant spike in sexual offenses in many parts of the country. Sexual offenses such as rape and defilement have constituted more than 35% of all reported cases.12

Egypt, there was a 19% increase of violence against family members linked to strict measures being implemented to limit the spread of COVID-19, according to a UN Women Egypt and Baseera survey. Amongst women surveyed from 04 to 14 April 2020, 11% of women had been exposed to violence the week before the survey.

A rapid assessment conducted by UN Women in Libya at the onset of the pandemic indicated that nearly half of the women surveyed feared an escalation of violence at home at the beginning of the lockdown period.

South Africa: Official reports show that within the first week of level 5 lockdown, South African Police Services (SAPS) received 2,320 complaints of gender-based violence, with only 148 related charges made. These statistics represent a 37% increase from the weekly average of South African GBV cases reported for 2019.16 Additionally, the GBV Command Centre in South Africa recorded a spike in gender-based violence cases reported during the lockdown from 27th March to 16th April with a total of 10,660 through phone calls, 1503 through unstructured supplementary services data (USSD) and 616 SMSs. On 16th April alone, the Centre has received 674 cases.17

Nigeria: reporting from 24 states across the country shows that the number of reported incidents of domestic violence spiked by 56 percent during the first two weeks of April compared with the same period in March, after lockdown measures were enacted on 31 March. In Lagos State, cases of domestic violence have surged by over 100 percent during the lockdown period (as of 14 April) compared with the number of cases reported for the entire month of March.

All in all 67% of women have experienced abuse which Is double the average global rate ( according to UNFPA report from March 30, 2020 - April 5th;23 defilement cases,22 rape cases, and 2 cases of passion killings were recorded, of the 23 defilement cases, 7 were children under 13 years of age.

**Data Science Tools**.

The project will heavily depend on the usage of python programming, statistical modeling data science libraries like Numpy, Seaborn, Pandas, Matplotlib, SQL, and the predominantly use of Microsoft Excel for Data Visualization and vivid graphical representations of dataset and VBA as the core of the mobile app.

**The Data GAP**

As per the narration of the Africa Commission, the Data gap Data collection on the types of violence against women and girls is essential to prioritize addressing violence against women in the response to COVID-19 and recovery efforts. Gender-Based Violence in Africa during the COVID-19 Pandemic. The emerging data of the impact of COVID-19 on women and girls highlighted in this briefing may currently likely only be reflecting the worst cases. Without access to private spaces, many women will struggle to make a call or to seek help online. Moreover, the potential loss of income due to self-isolation, potential lack of information regarding which GBV services remain available, and fears of contracting the virus at service points have created multiple barriers whereby survivors of GBV may find themselves in a near-impossible situation: unable to seek support, unable to access services, unable to leave their abusers26 and with nowhere to go. Thus understanding the scale and diverse experiences of sexual and gender-based violence (SGBV) for women and girls during the COVID-19 pandemic remains paramount for all African countries. Cameroon, Kenya, Malawi, South Africa, Uganda, and Zimbabwe,27 provide examples of taking steps to improve the collection and use of violence against women data in the COVID-19 context.

Addressing the Data Gap is where our agency comes in; which will be reiterated in the proceeding project breakdown.

Data Science project life cycle

* **Data collection –** It is the research and sourcing for datasets where data is not available or using the already available dataset in an organization.
* **Data cleaning –** It is the process of identifying and removing the anomalies in the dataset
* **Data Transformation –** It involves changing the data type of the columns, creating derived columns, or removing duplicate data to name a few
* **Exploratory data analysis –** Perform univariate and multi-variate analysis on the datasets to find hidden insights and patterns in them

Exploratory Data Analysis – Step by step approach

***Install Necessary Packages and Invoke Libraries***

The below packages are pre-installed by default on Anaconda since Jupiter notebook works on anaconda and the following libraries were invoked:

1. Matplotlib.pyplot as plt
2. PivotTable
3. Seaborn as sns
4. Numpy as np.

Environment Set up and Data Import

***Set Up Working Directory***

Setting a working directory on starting the Jupiter note by launching Jupiter from an anaconda session makes importing and exporting data files and code files easier. The working directory is the location or folder on the PC where you have the data, codes, etc. related to the project.

Please refer reference section for Source Code.

***Import and Read the Dataset***

The dataset for this project (**She’ros app**) is in .csv format. Hence, the command ‘**read.csv**’ is used for importing the file as exemplified below:

**shero\_app= pd.read\_csv("new(2).csv ",encoding=”utf-8”)**

1. Variable Identification

To identify the variables in the dataset the below python functions were used.

1. **shero\_app**.describe(): this was used to get the count, uniqueness, and summary of the dataset
2. **shero\_app**.head(): this was used to view the top rows of the data set
3. **shero\_app** [‘ Survivor’s age’].describe(): this was used to describe the Survivor age column and to get the summary.
4. Univariate Analysis
5. Bi-Variate Analysis
6. Missing Value Identification
7. Outlier Identification
8. Data visualization

Keywords

Covid-19 lockdown

Gender-based violence

Rape.

Reporting system

Physical violence

NR- not reported

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