**Cebile Ralipoli 202101661 C.R**

**Mothusi Maliehe M.M 202101689**

**Ramokoena RL 202001648**

**Mosotho MOHAU 202101670**

**MAHLOKO TLOTLISANG 202001935**

**NKIKANA LITEBOHO 202101178**

**LIHLOELA MOTLOMELO 202100197**

**TAU REFILOE**

1. **Introduction**
   1. **Objective:**

The objective id to develop an assembly language program to simulate the Machobane Farming System (MFS) in Lesotho, focusing on its unique seasonal crop rotation and intercropping practices in the lowlands.

* 1. **Machobane Farming System (MFS):**

Machobane Farming System is a farming system based on seasonal crop management through practices such as intercropping and relay cropping to sustain soil fertility and moisture which overall improves crop yield.

1. **Implementation:**
   1. **Implementation in C++:**

At first we implemented the Machobane Farming System simulator using C++.

* 1. **Description of how the code works:**

Main Function (main()):

Presents a menu-driven interface for the user to choose various farming operations.

Calls specific functions based on user input to simulate different aspects of crop management, such as winter and summer crop handling, intercropping/relay cropping, soil management, and yield calculation.

Provides an option to simulate an annual cycle for both winter and summer seasons.

Supporting Functions:

Winter and Summer Crop Management:

winterCropManagement() and summerCropManagement() simulate planting, growth, and harvesting of crops during their respective seasons.

Intercropping and Relay Cropping:

intercroppingAndRelayCropping() provides options to visualize and manage fields during different stages of intercropping and relay cropping scenarios.

Soil Fertility and Moisture Management:

soilFertilityAndMoistureManagement() simulates activities related to soil fertility improvement and moisture management.

Crop Yield Calculation:

calculateCropYield() calculates and displays estimated crop yields based on user-input factors affecting yield (intercropping, soil fertility, moisture levels).

Sustainable Practices:

simulateSustainablePractices() highlights the importance of sustainable agricultural practices, specifically crop diversity and rotation, for long-term soil health and productivity.