THE NATIONAL UNIVERSITY OF LESOTHO

Department of Mathematics and Computer Science

CS3520 - Computer Organisation and Architecture I

Machobane Farming System Simulator

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SERVER MONKS

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Code Explanation

Part 1: The seasonal crop management aspect of the Machobane Farming System handles the planting and harvesting features of the systems. The summer and winter crop functions each take as their parameters the number of season-specific crops to plant. The functions also provide a harvesting status of the crop, that is it tells when to harvest or whether the field has been harvested.

Part 2: Intercropping was implemented in wintercropmanagement function such that all different season-appropriate crops are planted on one field. The relay cropping feature was implemented in the summercropmanagement function to allow for winter crops to be planted along with the summer crops on one field.

Part 3: The Machobane Farming System also has a means to assess the condition of the soil on the field. It does so by reading the fertility and moisture levels of the soil, each on a scale from 1-10. The soil condition is therefore a function of the soil fertility and soil moisture. It can also alert the farm administrator when the fertility and moisture levels reach a certain low.

Part 4: The system can in addition calculate the yield return of each crop type. It achieves this through multiplying the seeds planted for a certain crop by the soil condition. The logic of the system ergo states that in order to receive the most yield, soil condition ought to be maximized.

Part 5: The main program of the system employs a menu function to allow for selection of various features of the Machobane Farming System. Through the menu, the traverser can access:

1. Winter crop management: Through this function the user is able to select which winter crop to plant and how much of it. This function also allows Intercropping to be done by planting all the winter crops on a single field.
2. Summer crop management: Grants the ability to plant summer crops and also grants a relay cropping feature by planting summer crops along with winter crops simultaneously on one field.
3. Prepare soil: Here the traverser can derive the soil quality by providing levels for soil fertility and moisture. The levels are on a scale from 1-10 and the favorable levels are those above 5.
4. Calculate yield: This function uses soil quality and number of crops planted as factors of the final yield output for a particular crop.
5. Quit: This last option ends the program.