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**COURSE TITLE: STRUCTURED COMPUTER
PROGRAMMING**

TITLE: CLASSWORK II

AUTOMATED IRRIGATION SYSTEM FOR ABUAD

FARM

Due to one of the major challenges faced by workers and farmers in the ABUAD farm I have decided to develop software that will help with the irrigation system in the farm and make it automated. The benefit of this software is to improve the irrigation system on the farm.

PLANNING

Here is how I would describe the layout of the system.

The system would be able to read the temperature of the soil and determine the moisture content of the soil. There would be a proper channel for the water to flow in such a way that would be able to reach and water all the plant and crops on the farm. And the irrigation would be done at particular time with a time interval. An alarm would be triggered if there is not enough water to go round the farm and access all plant and if there is little or no water for the next irrigation after the last one is performed and there would be a warning sign when the water inside the system has reduced. And the system would be password/code protected.

REQUIREMENTS

For the system to be successful there are some things I will need to be provided with.

A thermometer that would be able to measure the temperature of the soil. A device that is used to measure the moisture of the soil. A stopwatch or timer to be able to measure the time interval for each irrigation. An alarm that would be triggered when there is insufficient water for the irrigation process and a system to warn the operators when the water is not enough for the next irrigation after the last one. A well constructed channel for the water to flow in such a way that the water will reach all the crops in the farm and irrigate the farm complete. Water pump to pump water inside the tank. And an alarm to ring when the water in the tank is full. A keypad that you need to input the password before you can even start the system.

DESIGNING AND PROGRAMMING

This is how the system would be programmed, when the system is done booting you would be required to input the password to and it would only give you access and control if you provide the right password. The temperature of the soil would be shown and also the moisture of the soil would be shown as the measurement would be continuous and in real-time. Then the irrigation process would start if you want to, the readings of the tank would be shown and if the water is getting low a warning light would show and when the water for irrigation is insufficient an alarm would sound. When the water is low a pump would pump water inside and stop when the water in the tank is full. And a timer/stopwatch to ensure the time interval for each irrigation is kept and followed.

SOFTWARE DEVELOPMENT

The software used would first give you access to the system only when you input the right password. The software would also be displayed on the screen as the measurement would be continuous and in real time. And the software would make the irrigation to occur after a particular time interval. And the software would be programmed to activate an early warning when the water is getting low and activate the alarm when the water inside is insufficient for the next irrigation. The software would also activate the water pump to pump water into the tank and stop when the tank is full and also show the level of water in the tank.

TESTING

Before the system would be launched, the software would be tested and debugged to make sure that the program works perfectly without any fault or problem. Then the machines would be serviced to ensure that is in a good working condition and the channels would also be checked to ensure that it is supplying water to all the crops and its going through the farm.

DEPLOYMENT OR INSTALLATION

After debugging the program and checking the machines and other things. The software would be installed and the system would be changed to be made automated then it would be fully functional. A manual would be given to the operator so he would know how it works.

MAINTAINANCE AND UPGRADES

From time to time some technical operatives would come in and take a look at the system. To ensure that the system is working well and they will also install some upgrades if the need be. And also to ensure that everything was okay and in good perfect order.

And the technicians would also come to fix a fault or any problem the farmers or operators experience and also provide tips.

ALGORITHMS

Step 10: Start

Step 20: Ask for the password

Step 25: If the password is correct give access to the system

Else says "Invalid password"

Step 30: Measure and show temperature of the soil

Step 40: Measure and show moisture of soil

Step 50: Check and display the level of water in the tank

Step 55: If the water level in the tank is getting low show warning sign then move to step 80

ELSE move to step 80

Step 60: If the water level is low activate alarm

ELSE move to step 80

Step 70: Activate the water pump till the tank is full

Step 75: When the tank is full deactivate water pump

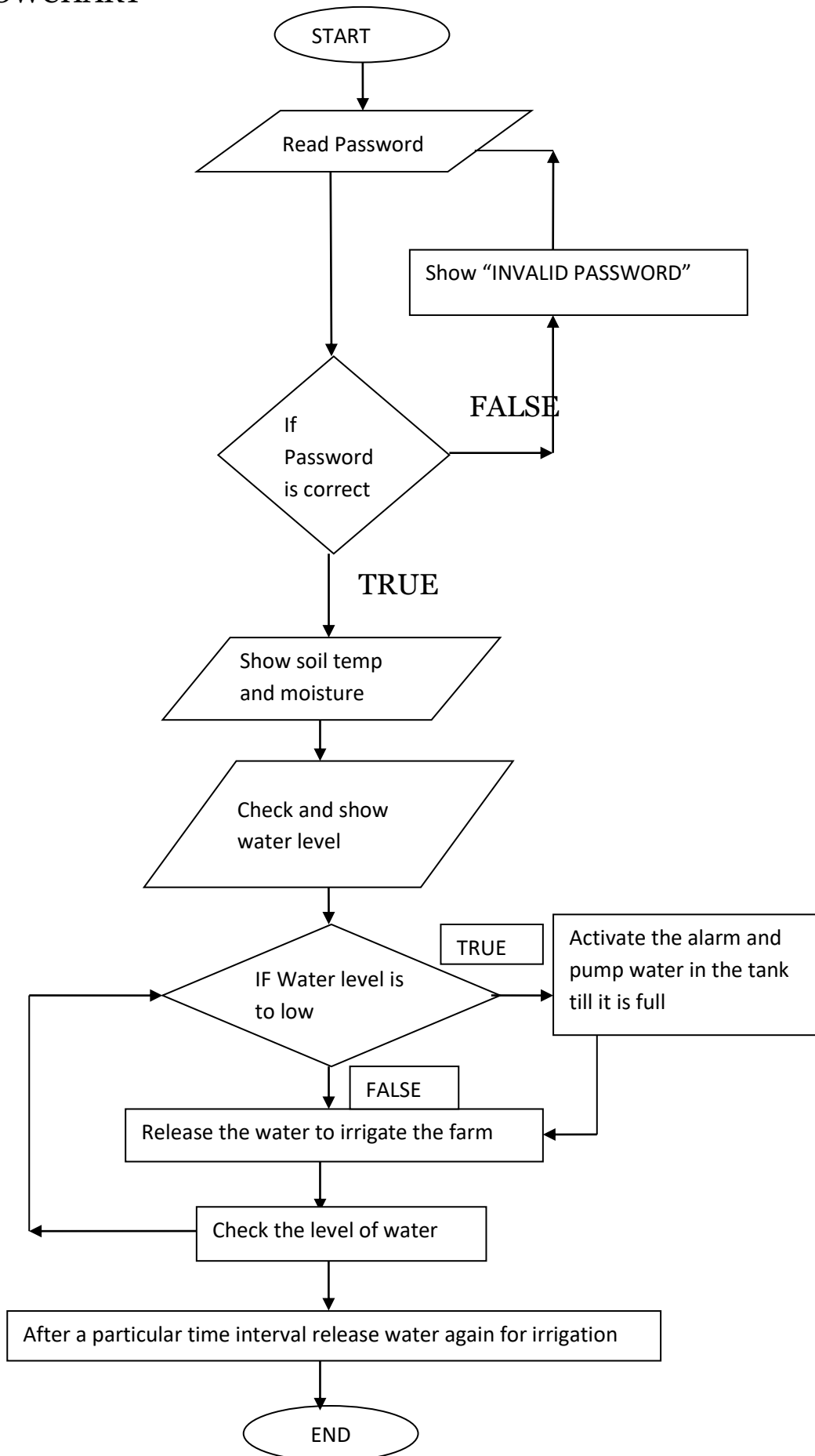
Step 80: Release water for irrigation till farm is fully irrigated

Step 90: After a particular time REPEAT step 80

Step 100: When water level gets low REPEAT step 60 and step 70

Step 110: END

FLOWCHART



DESIGN APPROACH OF APPLICATION

THE IRRIGATION SYSTEM

