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Preparing a computer program with FoxPro 9 language for asphalt laboratory in Dora refinery

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Abstract
The Asphalt lab. in Dora refinery needs a computer program to automize Its activities, because now most of laboratories in the world use computer programs to receive data and use standards informations and comparing them to get the suitable results, So this computer program is done to make the laboratory in a better form.
The computer program takes the asphalt sample name and gives its specifications and tells the analyst all the tests required to make on it, and after the selection of the analyst, then make the tests, the program will get the results, and show the standard informations and comparing them by the analyst, after that the program will show the report required for any period of time.
The program has an ability to show and print data at any time, and also edit, delete, add, and exit from the data files of the asphalt informations and standards and the test results.
This program was done by using a laptop with a suitable specifications and programming by FOXPRO 9 computer language.

Keywords: Asphalt, foxpro 9, computer program, dora refinery, asphalt laboratory

1. Introduction

The objectives of this research are to change the manualy work done daily in the laboratory to a work done with computer using a program written in Foxpro 9 language like the work of most companies works in the analysis of asphalt in the world.
Now more of 9000 company in the world use a computer program written with different computer languages to analyze asphalt in their laboratories, for example, Dora Rifinery in Iraq [1&2], Midor refinery in Egypt [3], SGS testing and control services in Singapore [4], Oil analyzers in Canada [5], Atlas Co. in Mumbai in India [6], VPS Co. in USA [7], D-A-Lubricant Co. in Lebanon [8], Metslab Co. in Abu Dhabi [9], Oil testing Lab Bureau Veritas in USA [10], Jordan petroleum refinery Co. LTD in Jordan [11], and Intertek Co. in USA [12], etc.

2. Materials Required

1. This computer program is done with a Laptop has the following specifications:

- Device name DESKTOP-KNC7LJM
- Processor Intel(R) Core(TM) i7-7500U CPU @ 2.70GHz 2.90 GHz
- Installed RAM 8.00 GB (7.80 GB usable)
- Device ID 36E1DDC9-0676-4208-A136-A9288FCC5630
- Product ID 00329-00000-00003-AA164
- System type 64-bit operating system, x64-based processor
- Pen and touch No pen or touch input is available for this display
- Edition Windows 10 Enterprise
- Version 22H2
- Installed on 6/ 11/ 2023

- OS build 19045.4170

Experience Windows Feature Experience Pack 1000.19054.1000.0

2. Foxpro 9 computer language

3. Theory

The theory of this work depends on the activities of Asphalt Laboratory in Dora Refinery which is :

- The samples brought daily to the laboratory by a sample collector.
- The operator of this computer program will define the asphalt name and use the computer program to print the specifications of this asphalt.
- The specification paper will send to the analyst to choose the tests required to be done on this sample, and collects the results
- The operator will introduce the results in the computer program.
- Then compare these results with the allowable standards.
- All these data and results will be saved by the computer program.
- The computer program will type any report required by the staff, the main menu is:

Table 1

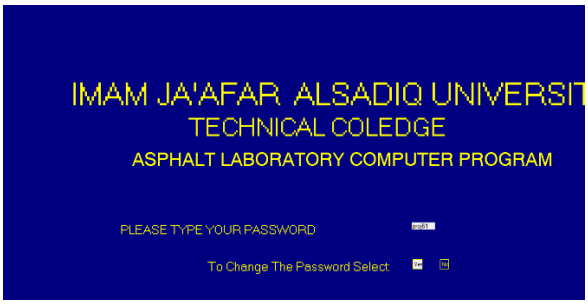
No.	Selection
1	Tests
2	Results
3	Certificate
4	Specifications
5	Result data
6	Comparing
7	Time period report
8	Return

4. Practical Work

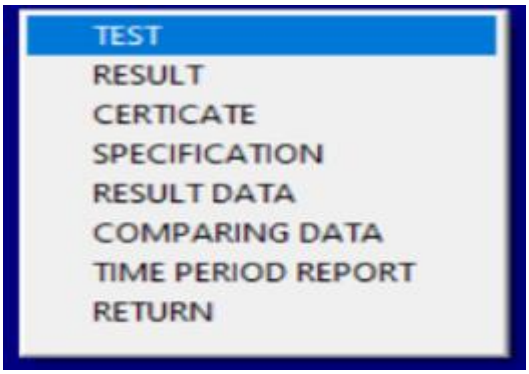
To use the computer program, do the followings:

1. Click on the logo of the computer program in the Desktop

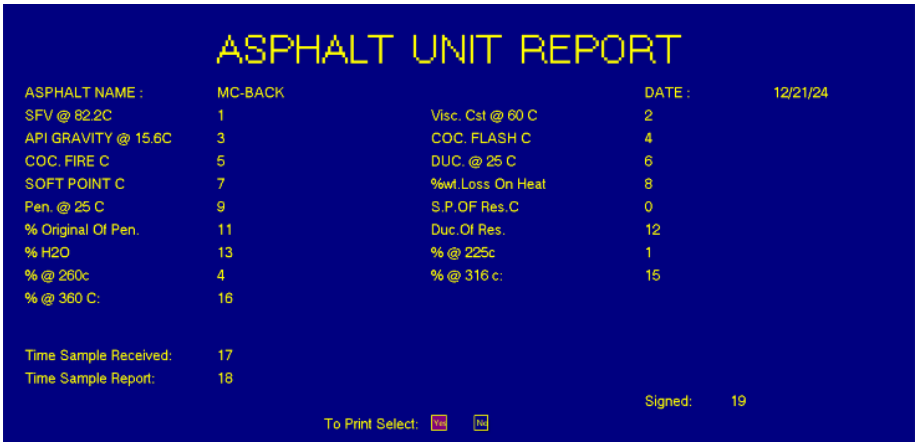
2. Type the password, the password can be changed by the operator at any time



3. Choose the required choice from the main menu which illustrated above, if the first selection is choosed, the program ask the name of asphalt:

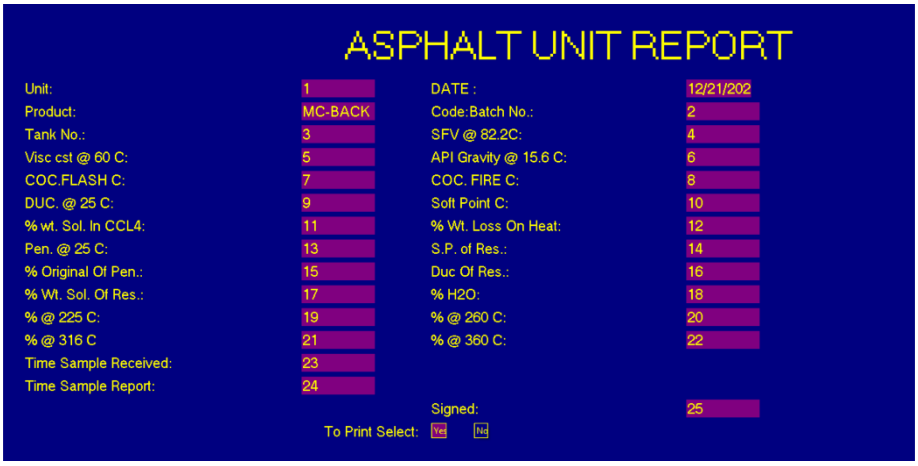


4. After typing the asphalt name, it's specifications will be shown



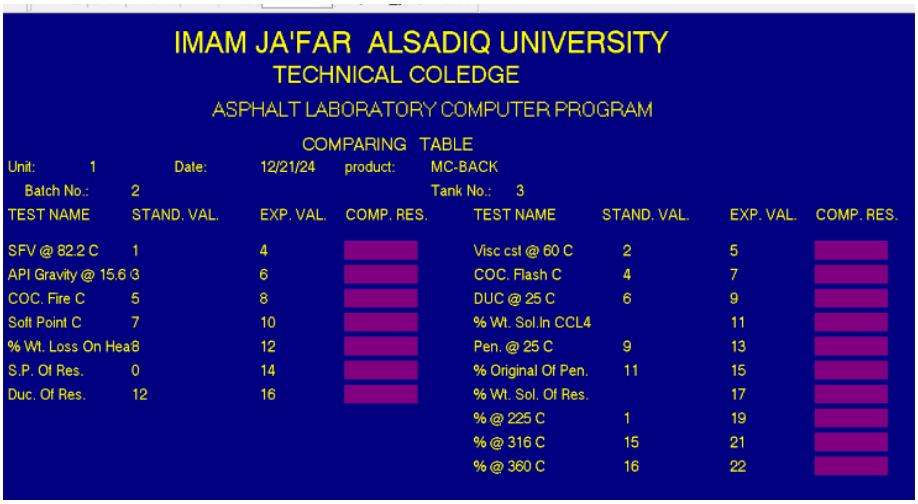
The program let a choice to print the data or not, and after choosing, the operator will go to the down step.

5. The test results will be introduced in the computer program by the operator

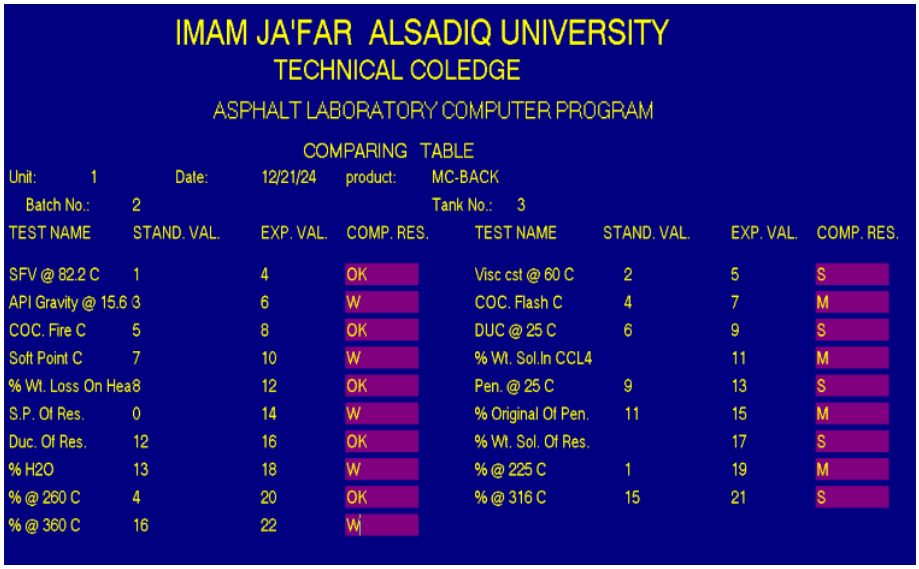


The program let a choice to print the data or not, and after choosing, the operator will go to the down step.

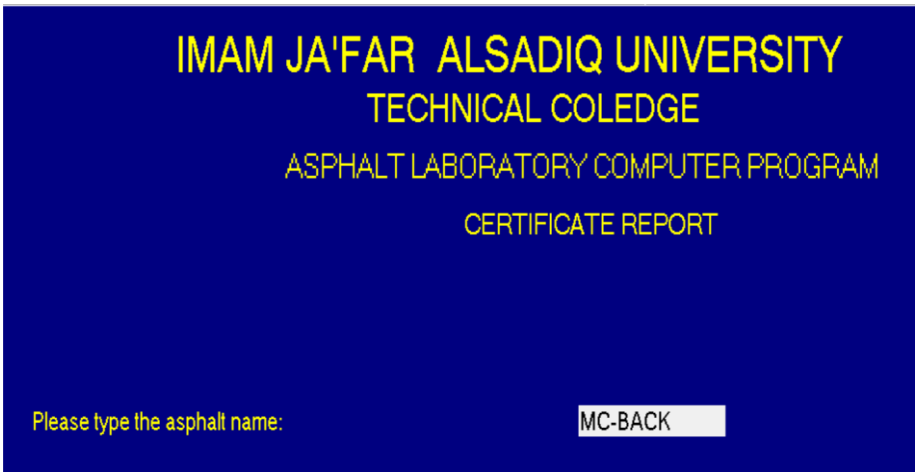
6. Comparing the results with the standard data.



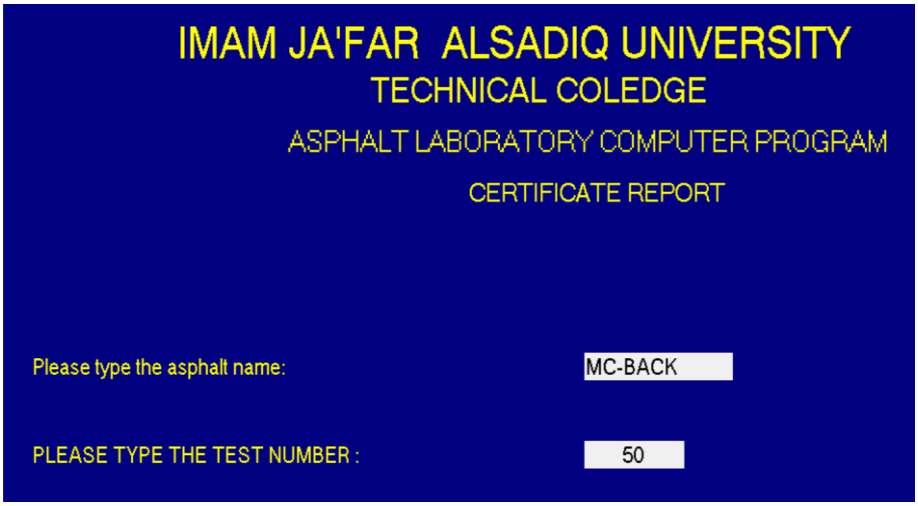
After filling the comparing data, the program will return to the main menu.

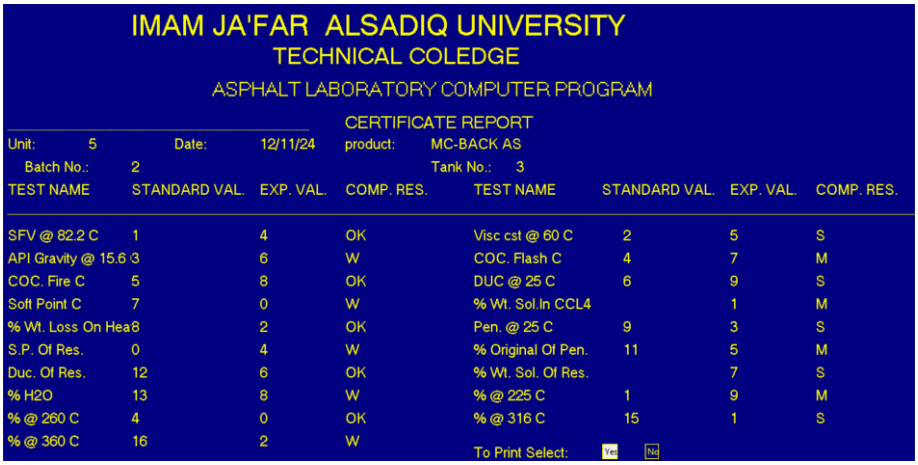


7. Click the certificate choice from the main menu: the program ask typing the asphalt name :



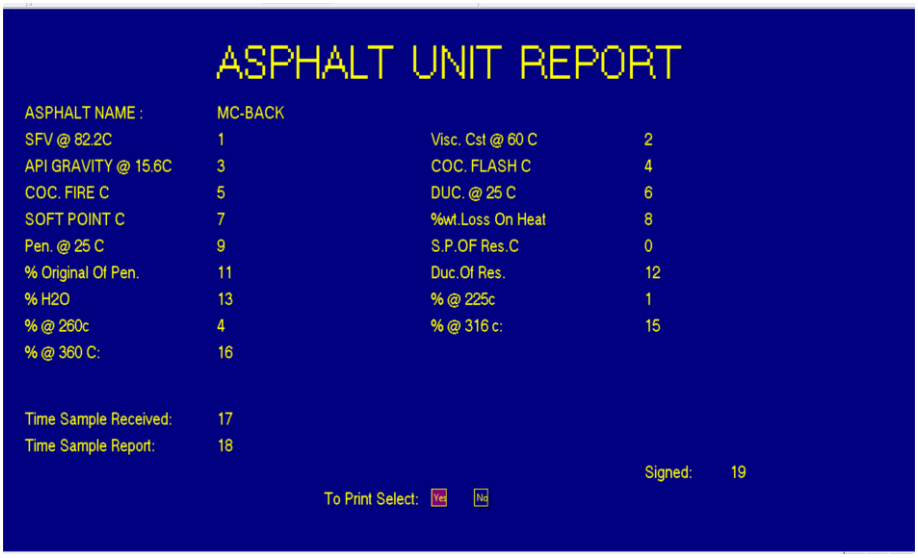
After typing the asphalt name, the program asks typing the number of the test, then the following page will occure



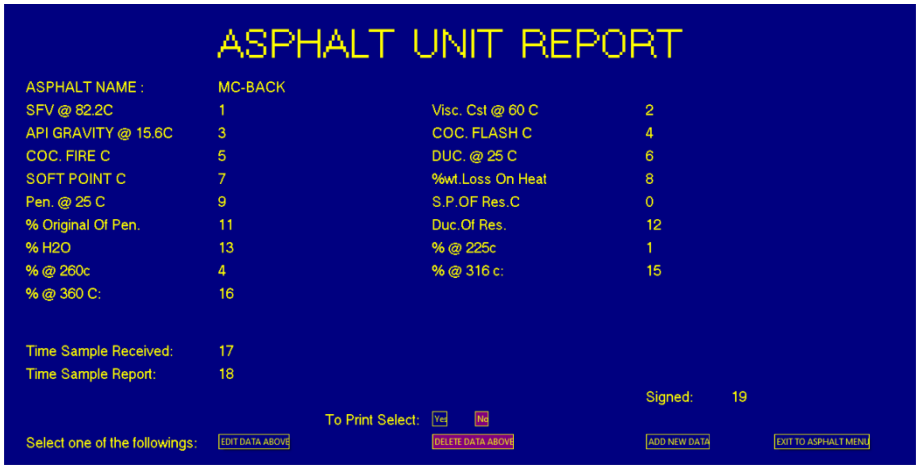


All the informations about the test (specifications of the asphalt, the standard data, the result of the tests done and the comparing results) will occure, and there is a choice to print the certificate paper or not. After that the program returns to the main menu.

8. Click the specification button, the program asks to type the asphalt name, After typing the asphalt name, the following page will appear.

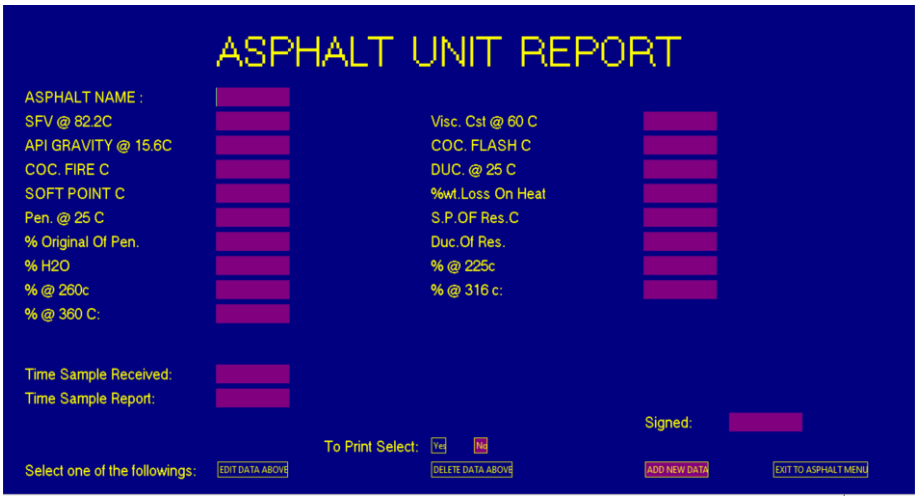


Which contains the specifications of the required, also the program let a choice to print the data or not, after that four choices (EDIT, ADD, DELETE, and EXIT), if the operator clicks the EDIT choice, the following page will be occure :



The program let the operator to change the data as he likes, then the program will save the new data, and return to the main menu

9. If the operator clicks the ADD choice, the following page will occure :



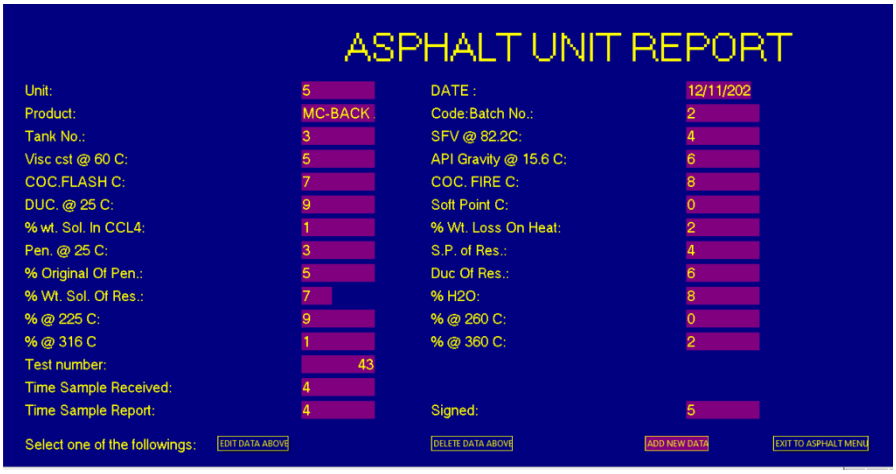
The program let the operator to add a new data, then the program will save the new data, and return to the main menu.

10. If the operator clicks the DELETE choice, the program will delete this specifications and returns to the main menu.

11. If the operator clicks the EXIT choice, the program will returns to the main menu.

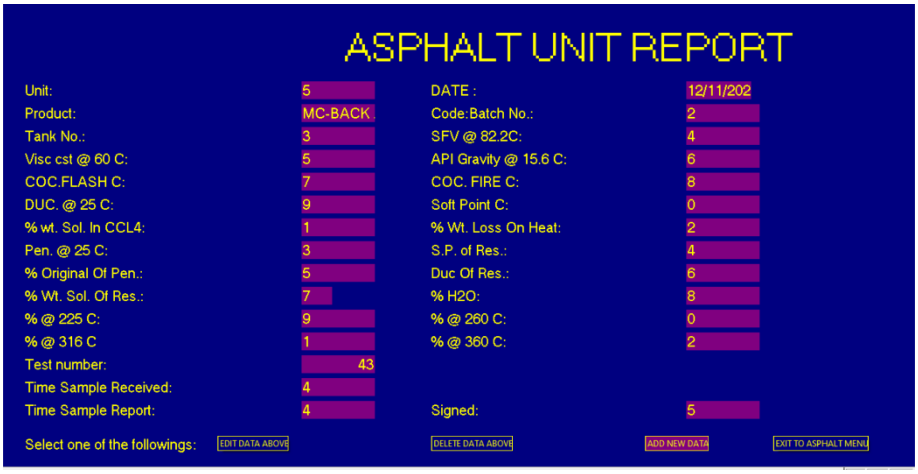
12. If the operator clicks the RESULT DATA choice from the main menu, the program asks to type the test number:

After typing the testnumber of the test, the following page will occure.



The operator can choose one of the following (EDIT, ADD, DELETE & EXIT), if he click the EDIT choice the following page will occure:

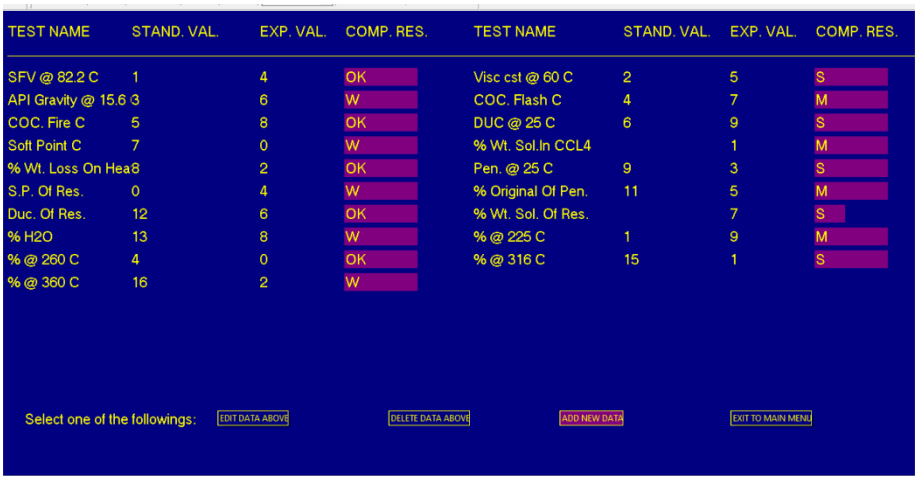
The operator can change and correct the data, then the program return to the main menu, if the operator click the ADD button, the following page will occure:



The operator can add new result data, and then return to the main menu, if the operator click the DELETE button, the program will delete the current test results and return to the main menu, and if the operator click the EXIT button, the program returns to the main menu.

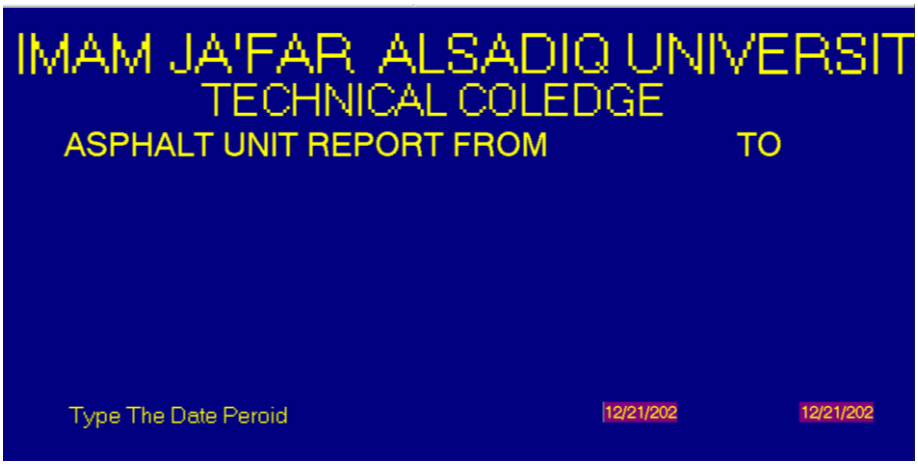
13. If the operator clicks the COMPARING DATA choice from the main menu, the program asks to type the test number, After typing the test number, the following page will occure:

After editing the above data, the program return to the main menu, if the operator select the DELETE button, the program will ask to type the test number and after typing the test code, it will delete this test results with its comparing results.
If the operatorer select the ADD button, the program will ask to type the test number, and after typing the test number, the following page will occure:

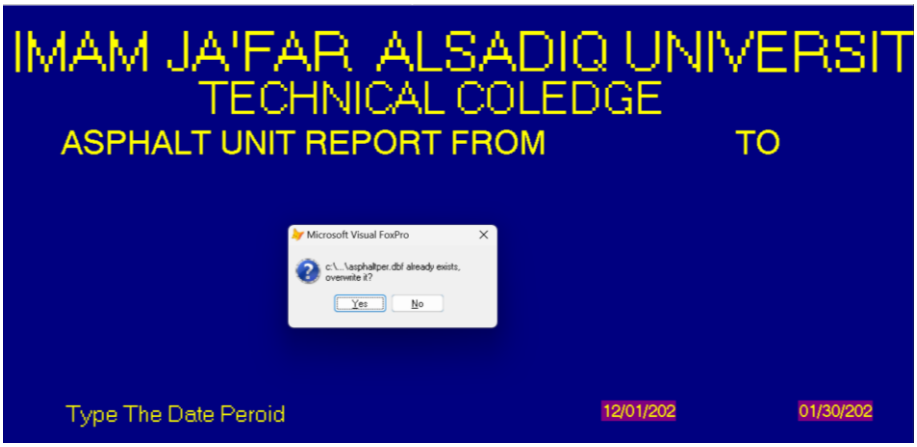


After adding the new data, the program will return to the main menu.

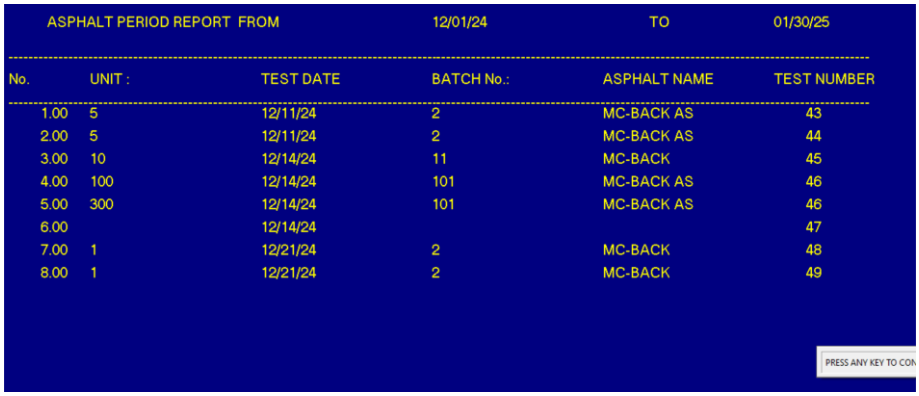
14. the operator clicks the TIME PERIOD REPORT choice from the main menu, the program asks to type the time period required If:



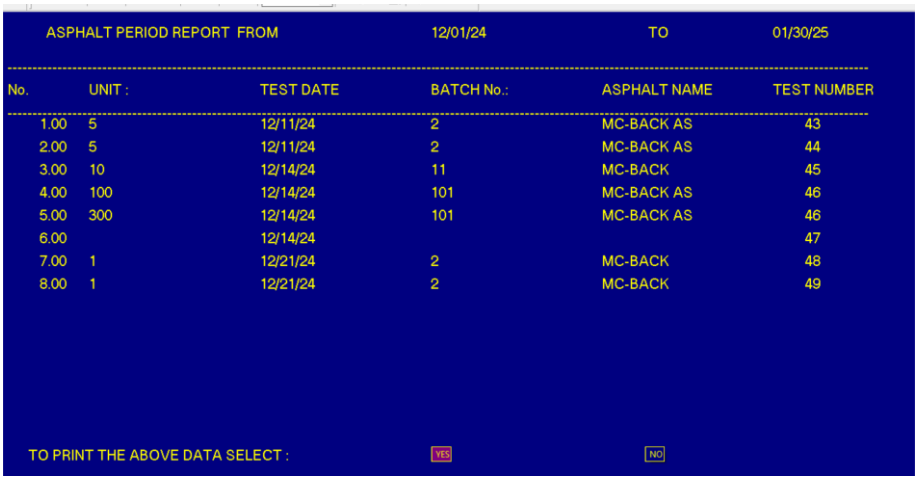
Then the program will ask about the file name of tests in this time period,



After selecting “yes”, the program shall type all the tests done during this time period (15 tests in one page), and wait rhe operator to click “PRESS ANY KEY TO CONTINUE” to see the new page until the results are finished.



When the operator click the final "PRESS ANY KEY TO CONTINUE", the following page will occure to let the operator to choose if he want to print data or not.



If the operator select YES the data will printed and return to the main menu, if NO the program will return to the main menu.

15. If the operator clicks the EXIT choice from the main menu, the program will exit to the desktop screen.

5. Conclusion

By using third computer program, the operator in the laboratory of Dora Refinery can:

- Type the specifications of the asphalt prepared to test, and give it to the analyst to sign the suitable tests required.
- Introduce the test results in the program, and give a comparing paper between the standard and experimental data, and let the analyst to compare between them and type the results of comparing.
- Edit, delete, add new data to the file of information's about asphalt, tests, and comparing results.
- Give a report at any time about the tests done during and required period time.

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