Date: 02-28-2023 ----> 04-25-2023

Instructions:

The student needs to recreate the Project with the name "STUDY-CASE" according to the study case denominated Airport-Data.

Study Case: Airport-Data

An aircraft has several flight data messages. One of them is the Flight plan information, which contains some of the following fields:

Flight Plan Information:

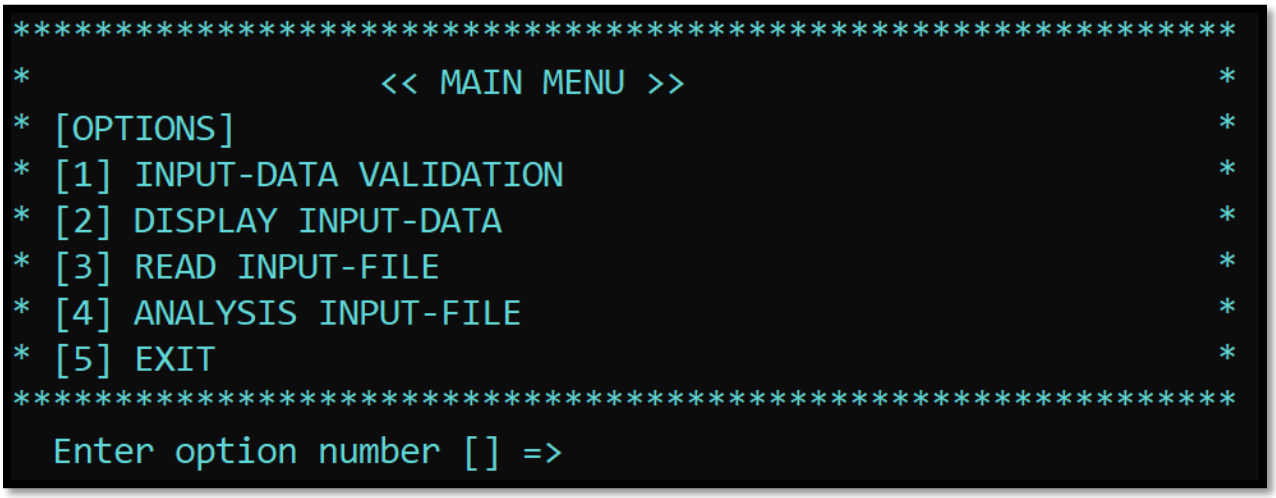
1. **sourceTime_00e1:** It includes a time in the format hh_mm_ss where hh stands for two-digit hours (00-23), mm for the two-digit minute (00-59), and ss for the two-digit second (00-59). An example is 230524.
2. **flightId_02a:** This field is the Aircraft ID, starting with one uppercase alphabetic character, followed by one to six alphanumeric characters. An example is AAL9794.
3. **computerId_02d:** the computer ID is represented by three alphanumeric characters. The allowed patterns are ddd,ddL,dLd, and dLL. The letters I and O are prohibited. An example 490.
   Note: "d" means digit, and "L" implies letter
4. **coordStatus_07d:** The coordStatus field is the single letter, A, D, or P, followed by four digits representing time as hhmm. The five alpha values represent:
   - A – Active arrival flight plan. Aircraft is in the air
   - D – Flight has departed from the departure airport
   - P – Proposed flight plan preparing for departure

   Some examples: A2305, D2306, P2307.

The program office (PO) from International Airport KSAV used these fields for making decisions. In that sense, they need to create a program in C++ with the following requirements:

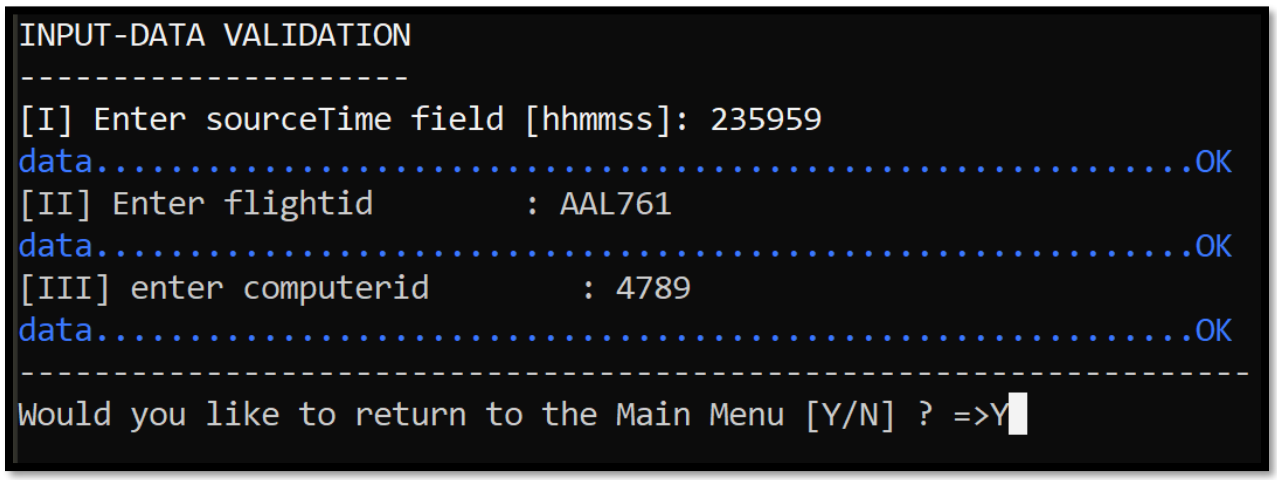
1. The use of the main menu with options below (see picture-1)[15 points]
   - [1] Input-Data Validation
   - [2] Display input-data
   - [3] Read input-file
   - [4] Analysis input file
   - [5] Exit

Picture N° 1 Main Menu

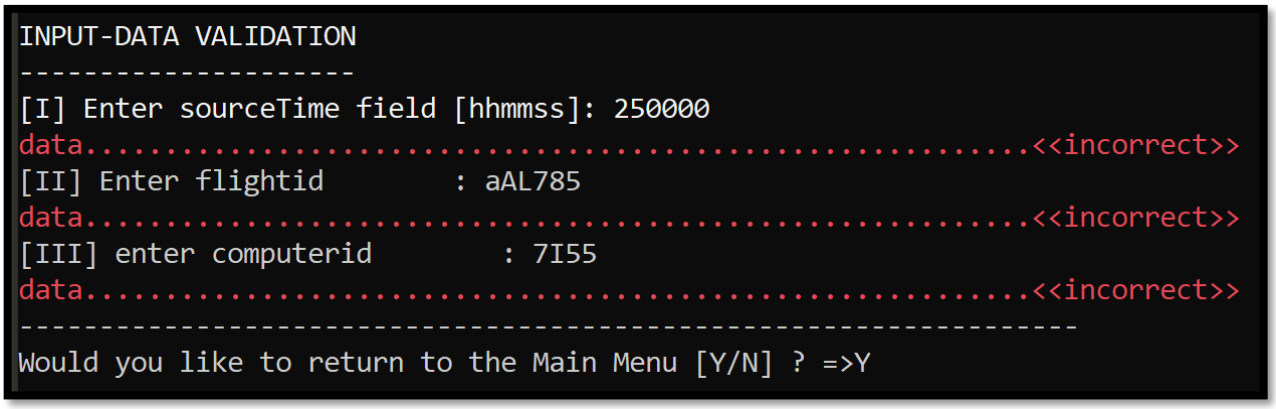


2. The Menu-option "Input-data validation" must verify the fields **sourceTime_00e1, flightId_02a, computerId_02d** in accord the flight plan information described on page 1. After the validation, each field must show the messages "data-ok" or "data-incorrect."
(see picture-2 and picture-3) [20 points]

Picture N° 2 Validation data-OK

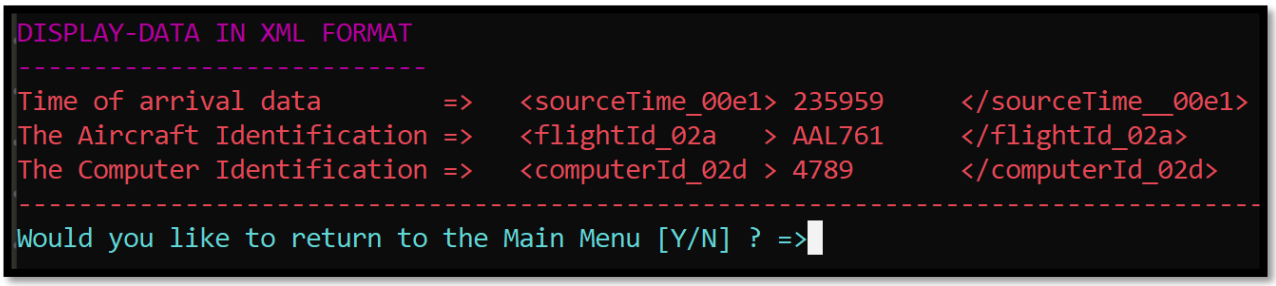


Picture N° 3 Validation data-incorrect

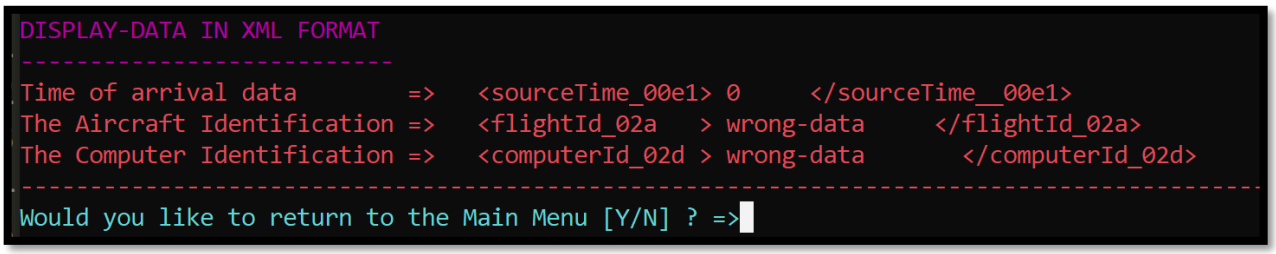


3. The Menu-option "Display Input-data" must show the input data got in accord with the following XML format: [20 points]
   3.1 If the input data is correct shows : (see picture-2.1)
   <sourceTime_00e1> data entered </sourceTime_00e1>
   <flightId_02a > data entered </flightId_02a>
   <computerId_02d > data entered </computerId_02d >
   3.2 If the input data is not correct shows : (see picture-3.1)
   <sourceTime_00e1> 0 </sourceTime_00e1>
   <flightId_02a > wrong-data </flightId_02a>
   <computerId_02d > wrong-data </computerId_02d >

Picture N° 2.1 Display data-ok in XML format

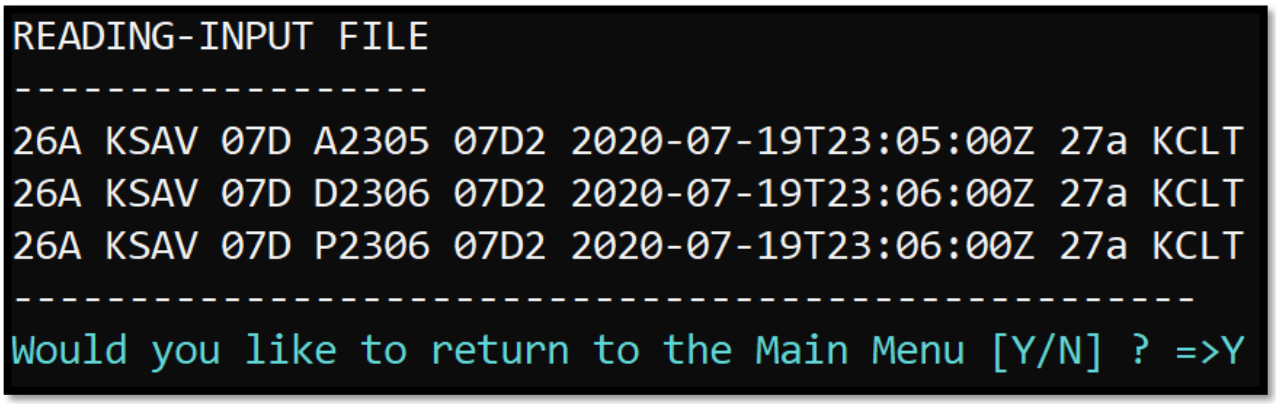


Picture N° 3.1 Display wrong-data and 0 in XML format



4. The Menu-option "Read Input-data" must read and show data from the file DATA02.txt with the followings data messages: [80 points]
   (see picture-4)
   26A KSAV 07D A2305 07D2 2020-07-19T23:05:00Z 27a KCLT
   26A KSAV 07D D2306 07D2 2020-07-19T23:06:00Z 27a KCLT
   26A KSAV 07D P2306 07D2 2020-07-19T23:06:00Z 27a KCLT

Picture N° 4 Read Input-data



5. The Menu-option "Analysis input file" uses DATA02.TXT to show the log file with the following message: [20 points]
   (see picture-5)
   5.1 If the data head is 07D and his detail message begins with the letter D, the message is "Flight has departed from departure airport KSAV."
   5.1 If the data head is 07D and his detail message begins with the letter, not equal D, the message is "missing coordination status."

   Examples:

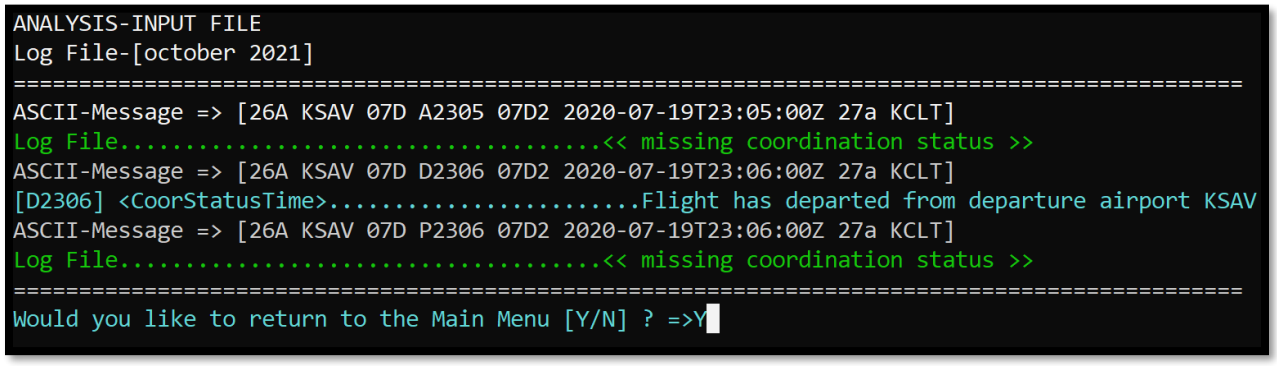
```
07D D2306
 |  |
 |   -------> detail message
  ----------> data head
```

   Message: "Flight has departed from departure airport KSAV."

```
07D P2259
 |  |
 |   --------> detail message
  ----------> data head
```

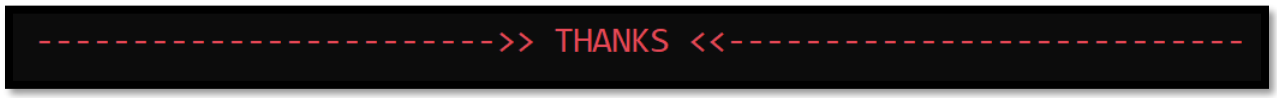
   Message: "missing coordination status."

Picture N° 5 Read Input-data



6. The Menu-option "Exit" shows "Thanks" and closes the main menu. (see picture-6) [5 points]

Picture N° 6 Exit-option



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