Task 1

We make the working hypothesis that an undergraduate student of the Department of Computer Engineering and Computer Science of the University of Patras wants to issue a user card to the University Library using the card form provided by the library which he fills out without error. The form can be found here: https://library.upatras.gr/card.

Assume that the student fills in all fields of the form - mandatory and optional. All fields are filled in in Roman characters. The student comes from and lives in the city of Patras (residential address: Alkiviadou xx, 26442) and his/her email is of the form xxxxxxxxx@upatras.gr where xxxxxxxxxxx is his/her surname, or his/her name -it doesn't matter because both are in 9 characters- like every name he/she is asked to fill in). The registration number contains 6 digits, while the identity card number contains two alphabetic characters and 6 numeric digits. The student shall also complete the remarks field in which he/she shall add a text of 100 characters. The student chooses to receive the card from Patras - Rio (BCP). Please note that the form asks for the student's phone numbers (mobile and landline) to be entered in a specific way. To proceed with the application for the card, the student accepts the terms and conditions and consents to the use of his/her data by selecting the corresponding fields of the form. He then clicks on the Submit button.

After you have configured the values for each field, use the KLM- FA tool to calculate the values for each of the following cases and mark the following statements as True or False and justify your answers. Also provide the corresponding KLM screens as calculated for each case.

For all cases the mouse pointer is at the top left of the screen.

1. Assume that the student starts with his hand on the keyboard and is a "best typist". If he uses the keyboard exclusively, he will have a better time (KLM predicted time) than if he uses the mouse exclusively.

2. Assume that the student starts with his hand on the mouse. If he is an "average typist" using exclusively the keyboard he will have a better time (KLM predicted time) than if he was best typist using exclusively the mouse.

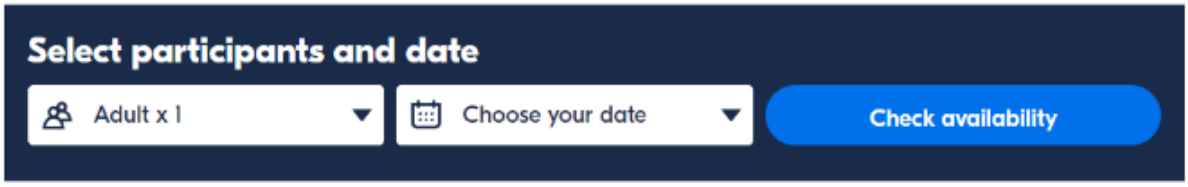
3. Suppose the student starts with the hand on the mouse and is a " poor typist". If he exclusively uses the mouse, he will have a better time (KLM predicted time) than if he exclusively uses the keyboard.

4. Suppose the student starts with the hand on the mouse, is a "best typist" and uses the mouse exclusively. His time (KLM predicted time) improves if we consider Fitts' law.

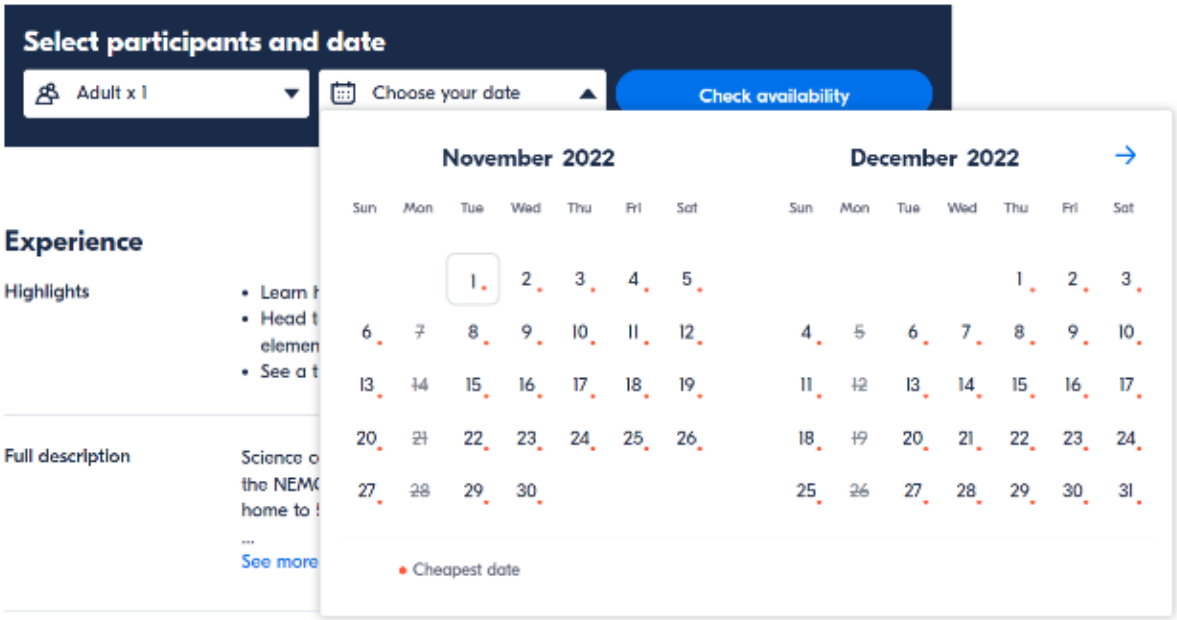
Task 2

We make the working hypothesis that a student of the Department of Computer Engineering and Information Technology is interested in visiting the Acropolis Museum and wishes to schedule his visit for 29/11/2022.

Let's assume that a visit is booked through the following procedure.



Initially, the student is asked to select the ticket type from a drop-down list with 4 options and chooses "student". Then he or she selects the day of the visit. Clicking on the date field displays the calendar.



The student selects the date he/she would like to visit the museum and clicks on the "Check availability".

Once you have proceeded with the availability check, the next screen appears where you fill in the following attributes:

Each name typed consists of 9 characters. As an email he uses the email of his school which is lastname@ceid.upatras.gr (ATTENTION! where lastname is the last name of the student).

Once he has filled in the above information, he clicks on the "overview of entries" button and an overall description of the data he has entered appears on the screen. After reviewing the data for 7 seconds, he chooses submit.

Assumptions to consider when solving the task:

- The first and last name of the student consists of 9 characters. Only the first letter is capitalized in each name.

- To insert the capitalized characters and to insert the character -- @ -- use the shift key.

- When entering data for the first time, the CapsLock is activated.

Assume that the student's hand at the moment of starting the procedure is on the keyboard and the mouse pointer is at the top left of the screen.

Calculate the average time to complete the task without using KLM-FA assuming that the user uses the mouse to perform the task (excluding text input where required) and has average typing ability. Use mental preparation operator where provided.

Give your answer using a table like below:

Number	Work	KLM Time
1	…	
2	Student’s first name 1-9 digits	A+B+C+D = x.xx sec
3	Student’s last name 1-9 digits	A+B+C+D = x.xx sec
4		
	T1+T2 +...=	**x.xx sec**

Solution 1

The first thing I do is to configure the values for each field:

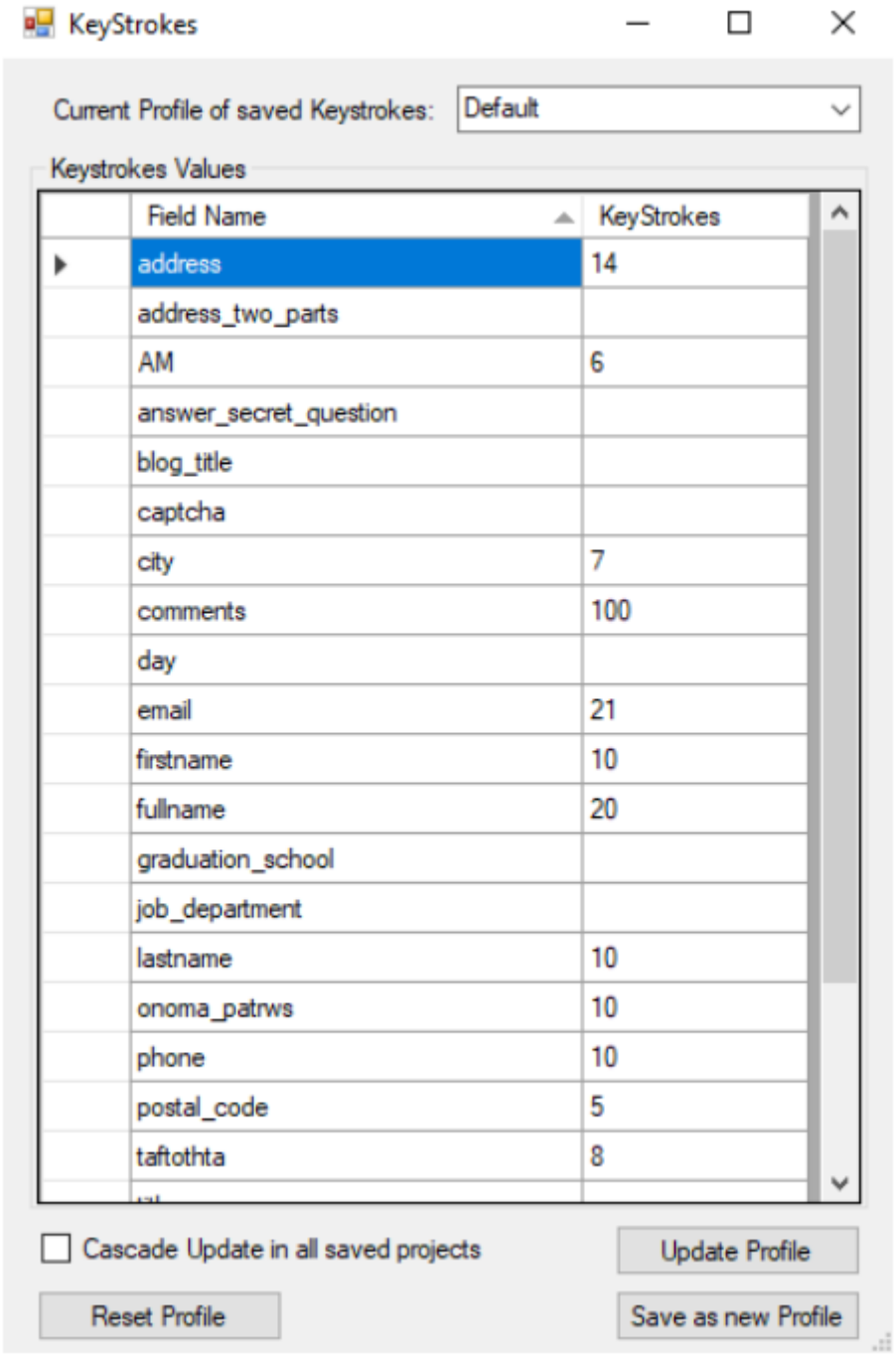


Figure 1: Keystrokes

Then I change the keystroking times, based on the lesson slides:

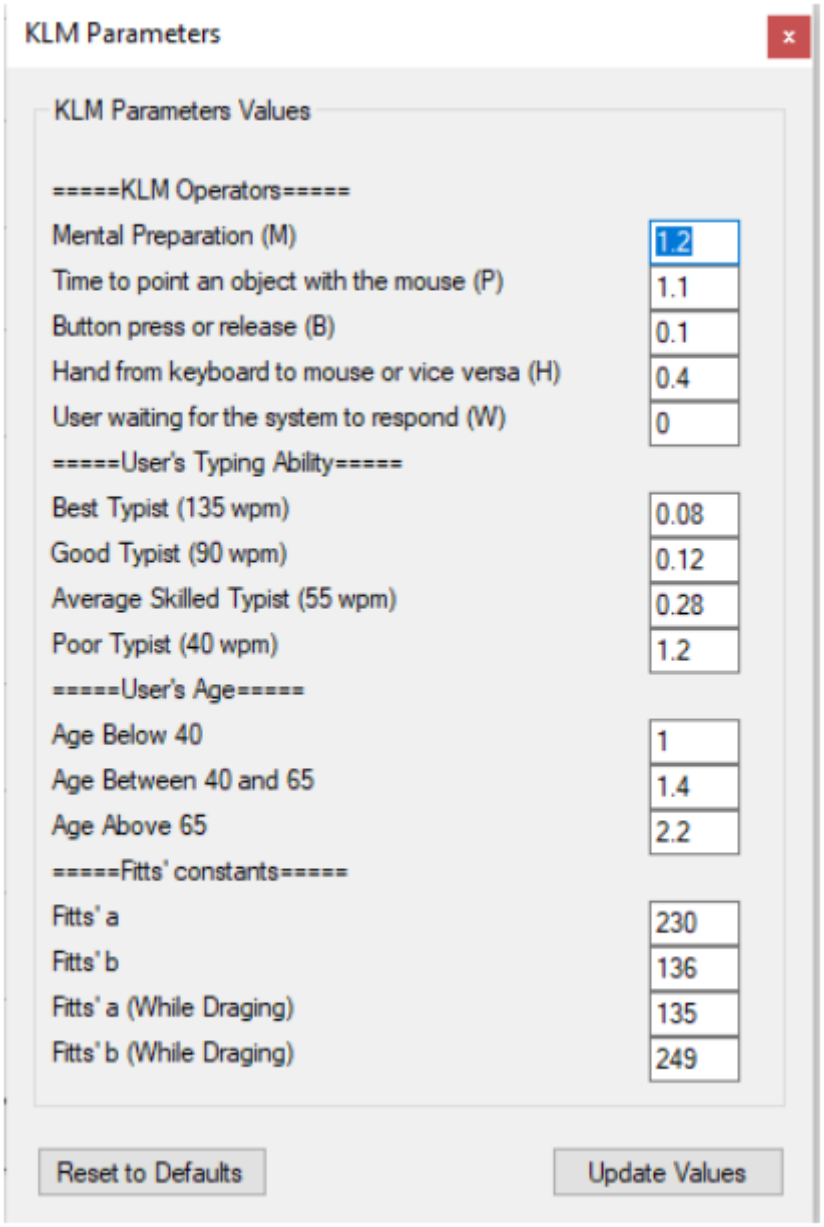


Figure 2: Rules

Below, there are screenshots for all the cases requested. I can't show the initial states unfortunately, but what is requested is used.

1. **Correct**

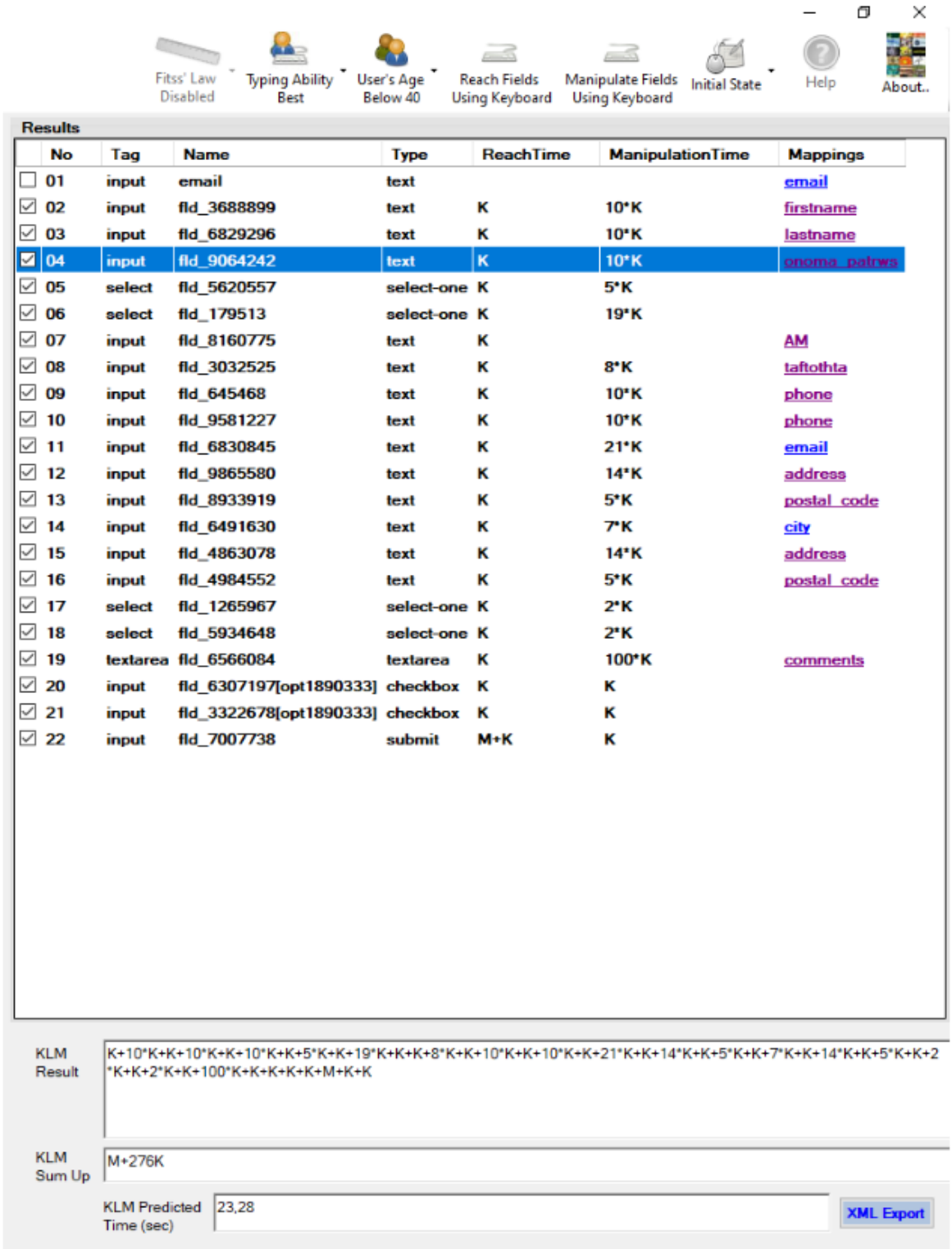


Figure 3: Best typist starts with hand on keyboard, uses keyboard exclusively. Time = 23.28

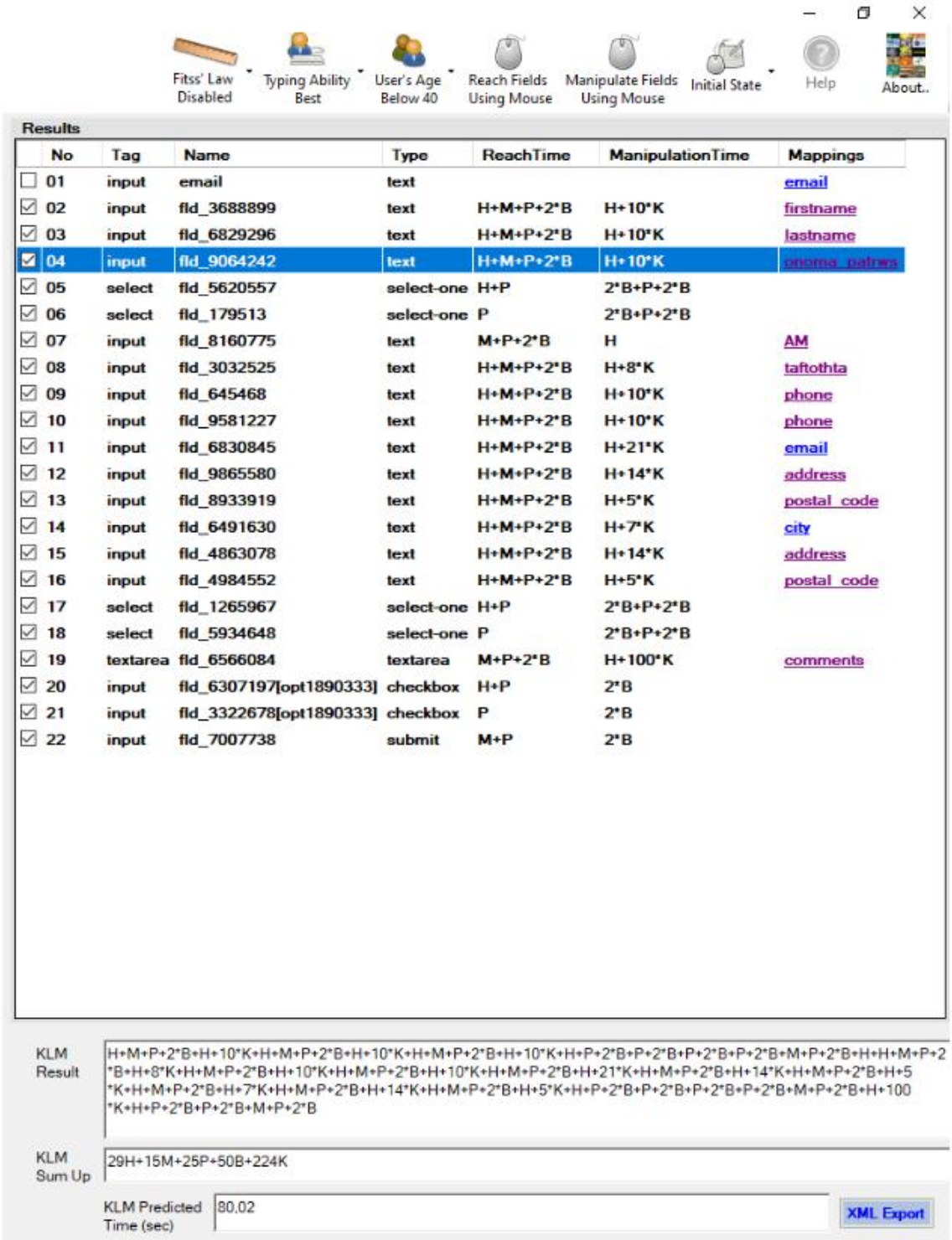


Figure 4: Best typist starts with hand on keyboard, uses mouse exclusively. Time = 80.02

2. Correct

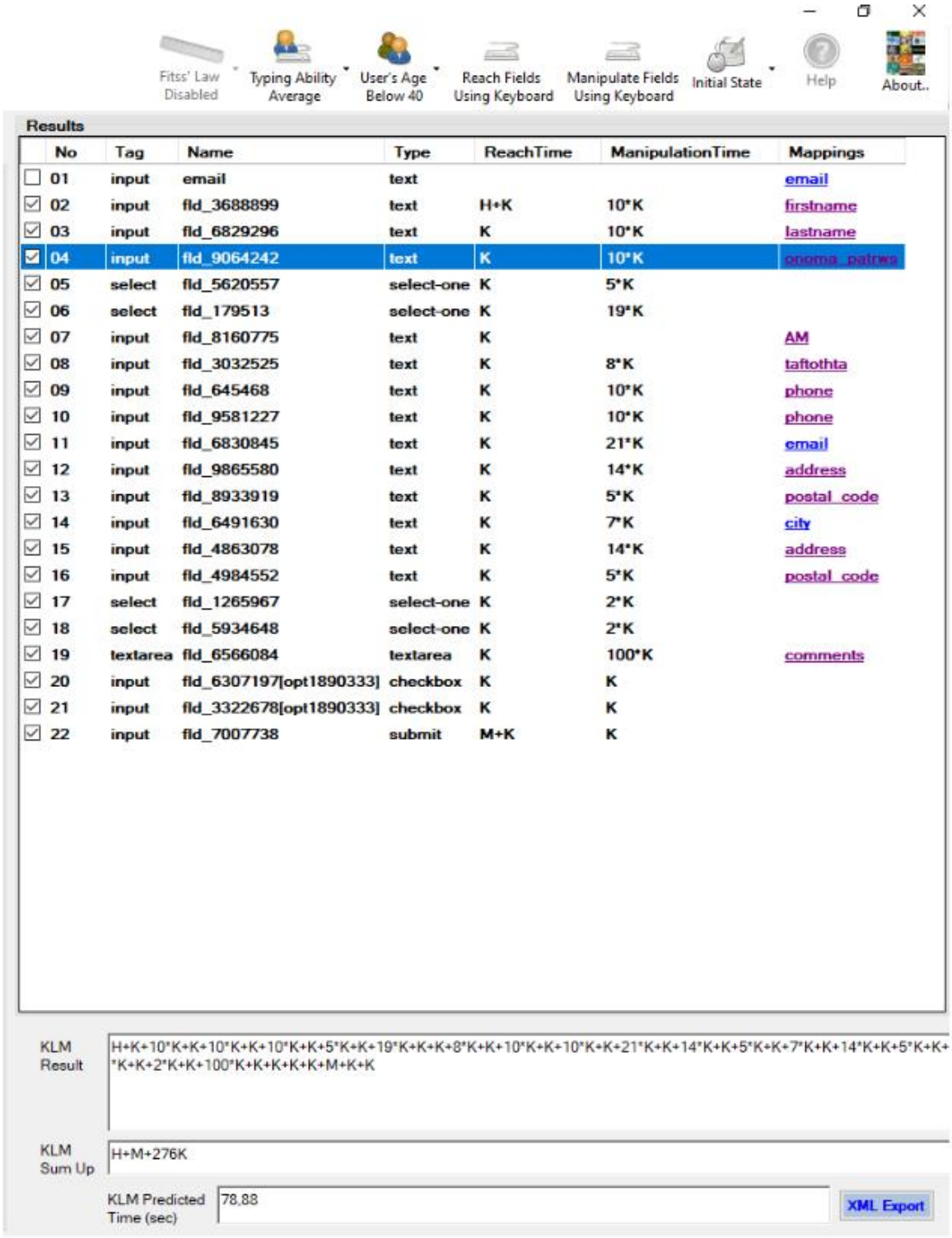


Figure 5: Average typist starts with hand on mouse, uses keyboard exclusively. Time = 78.88

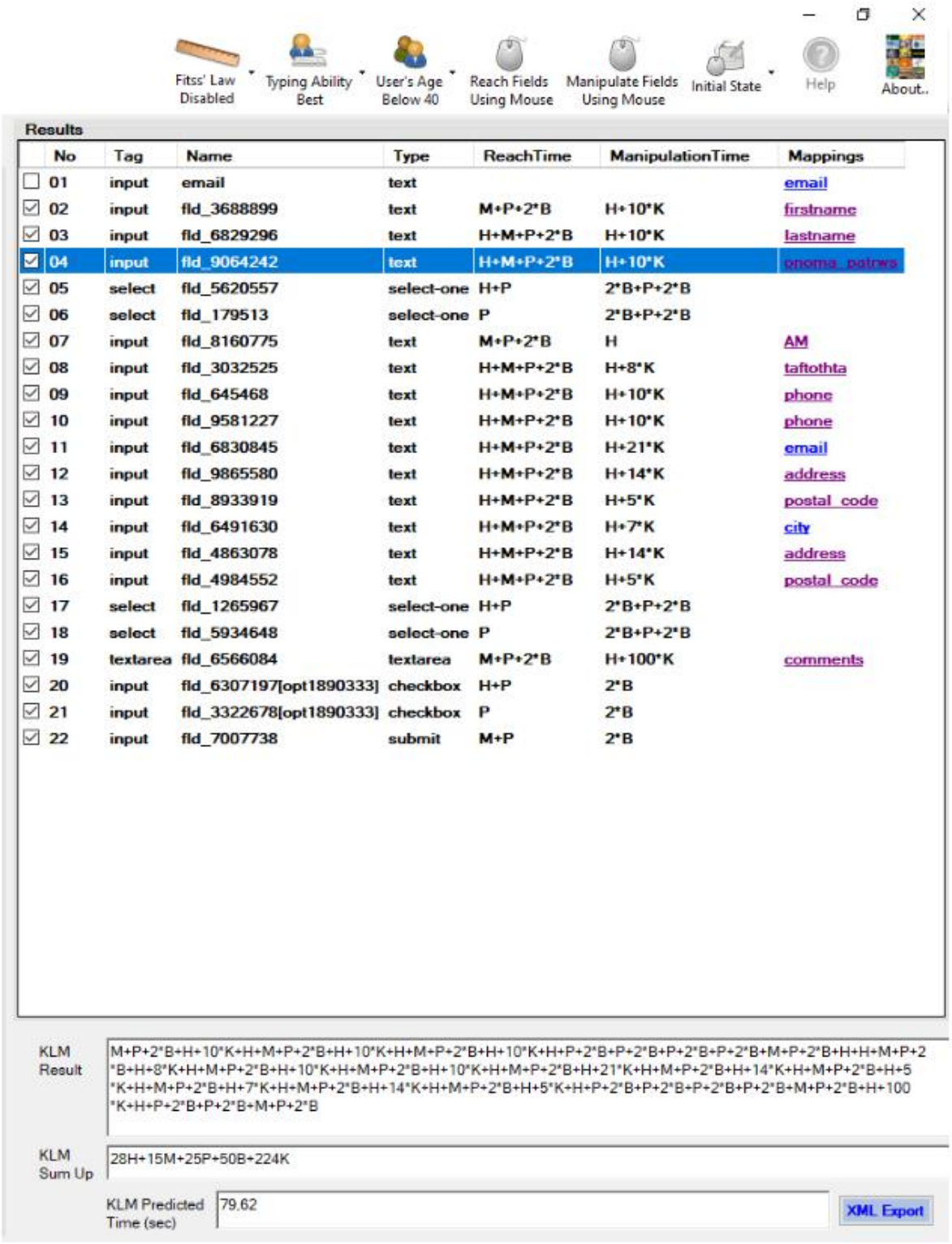


Figure 6: Best typist starts with hand on mouse, uses mouse exclusively. Time = 79.62

3. Correct

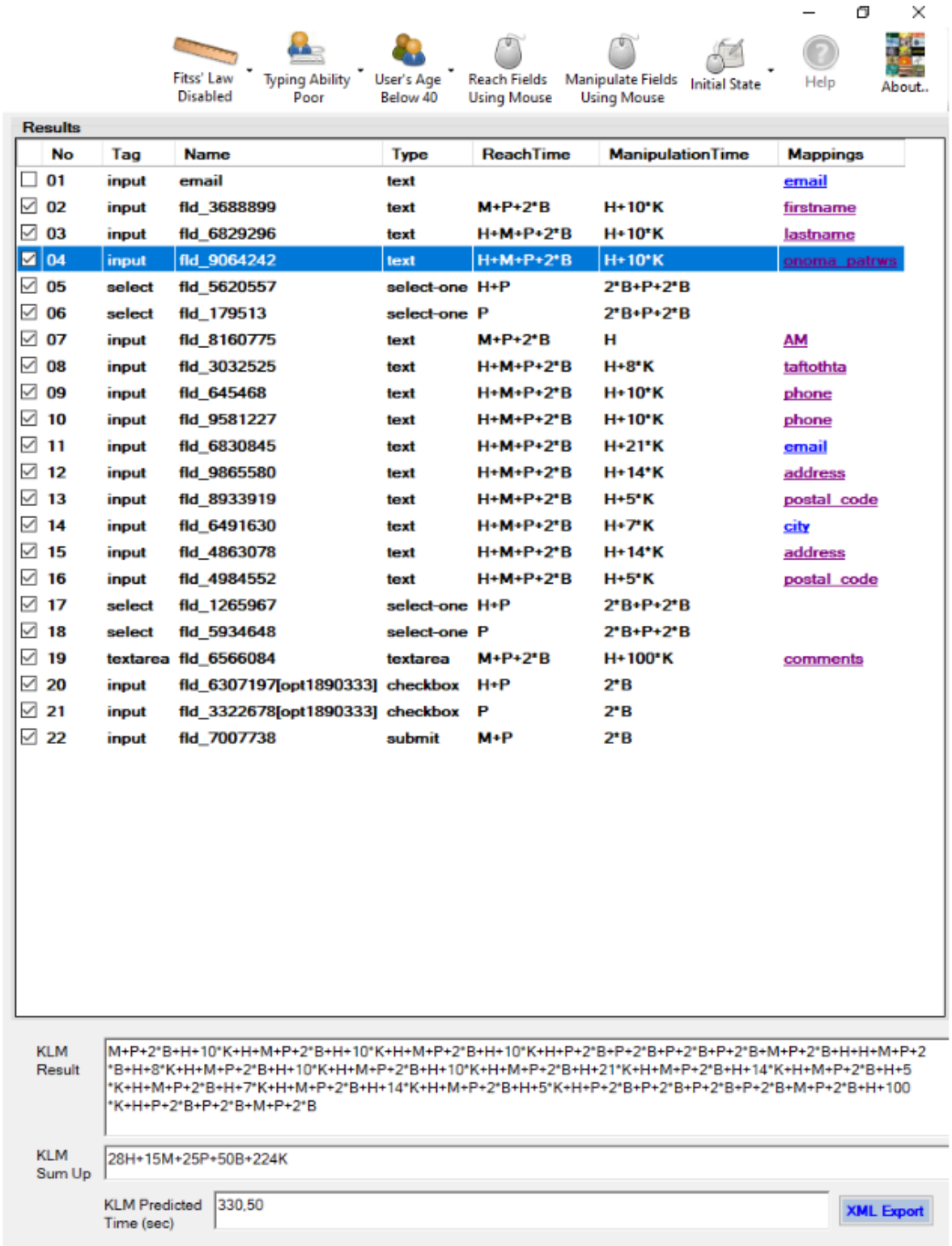


Figure 7: Poor typist starts with hand on mouse, uses mouse exclusively. Time = 330.50

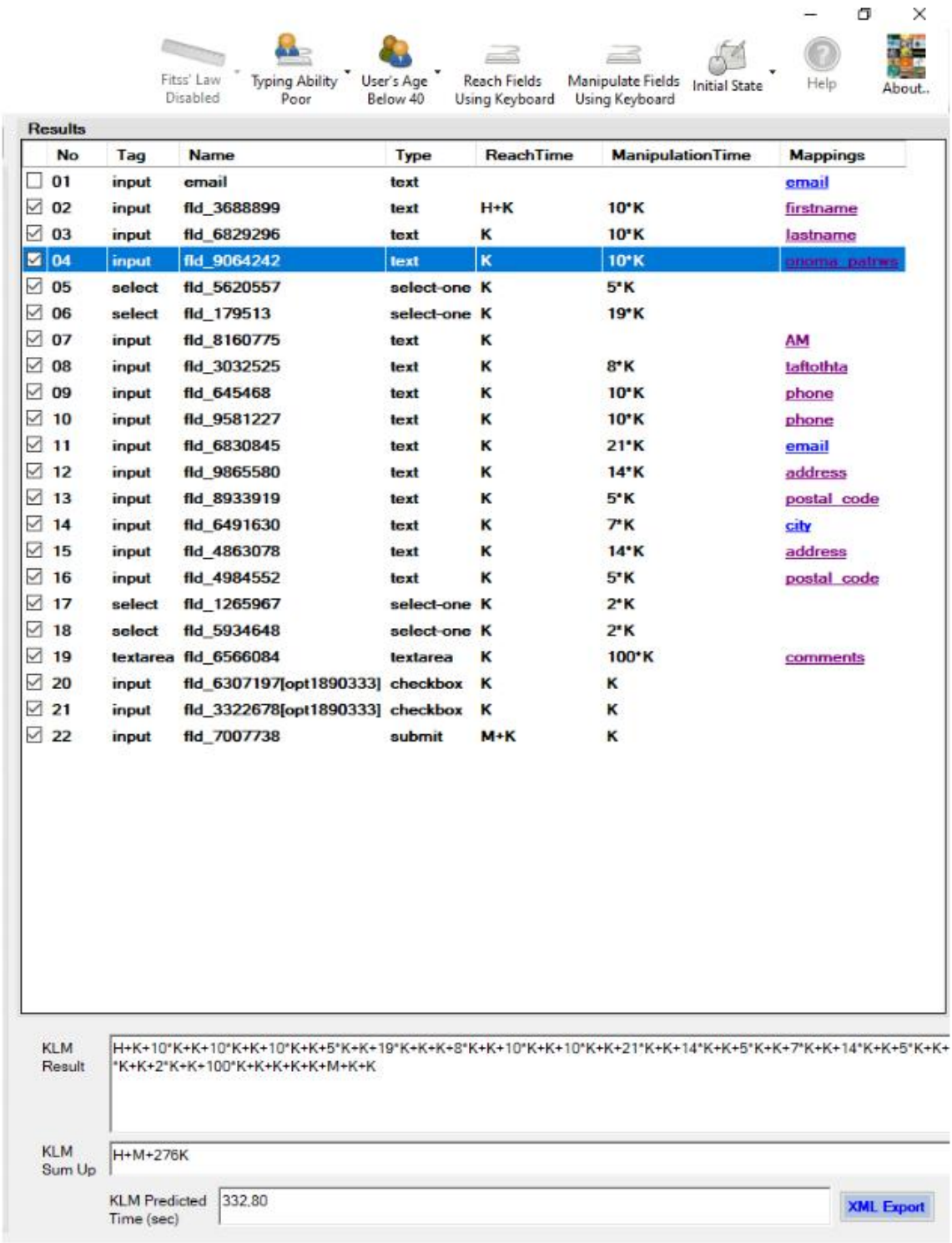


Figure 8: Poor typist starts with hand on mouse, uses keyboard exclusively. Time = 332.80

4. Correct

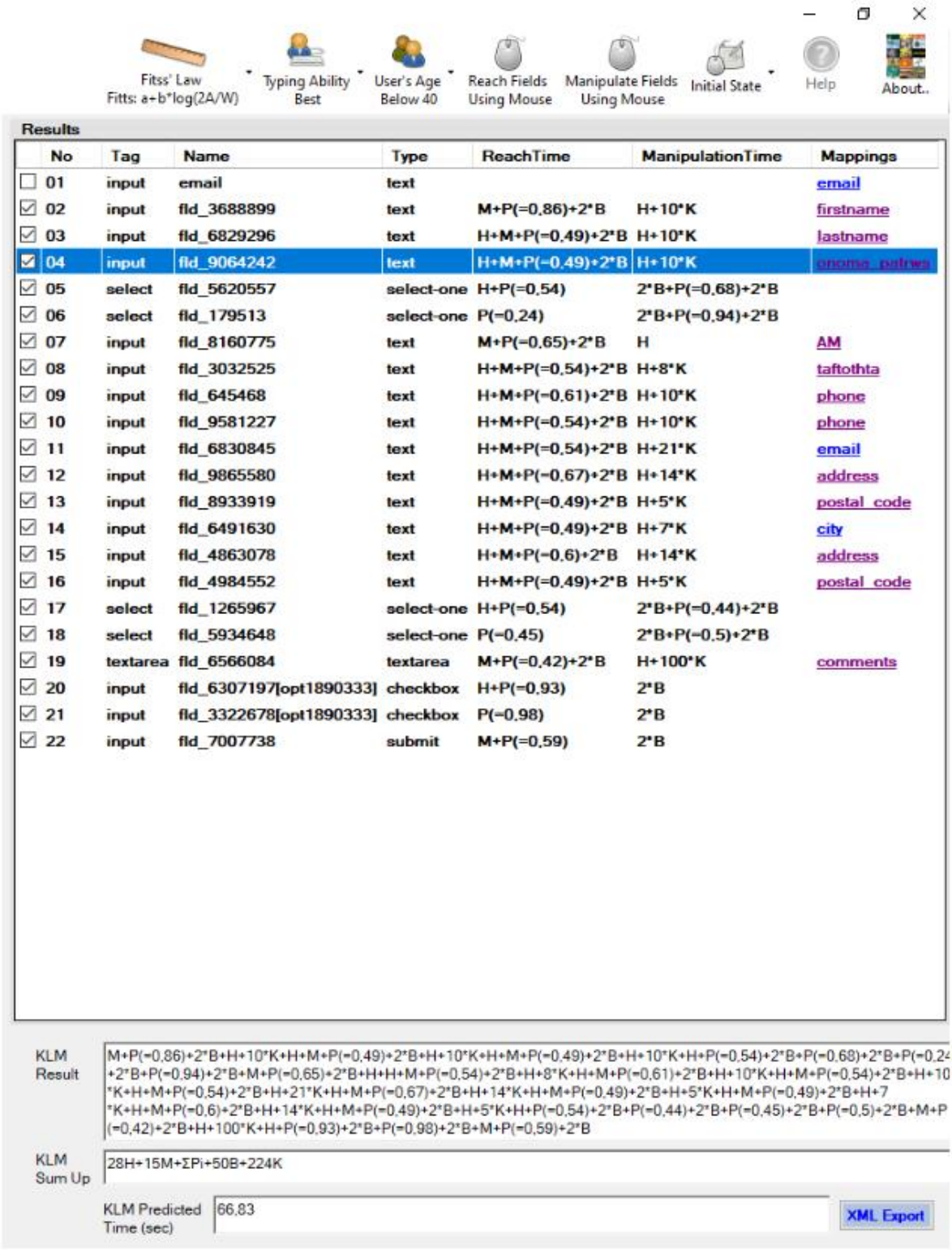


Figure 9: Best typist starts with hand on mouse, uses mouse exclusively, uses Fitts' law. Time = 66.83

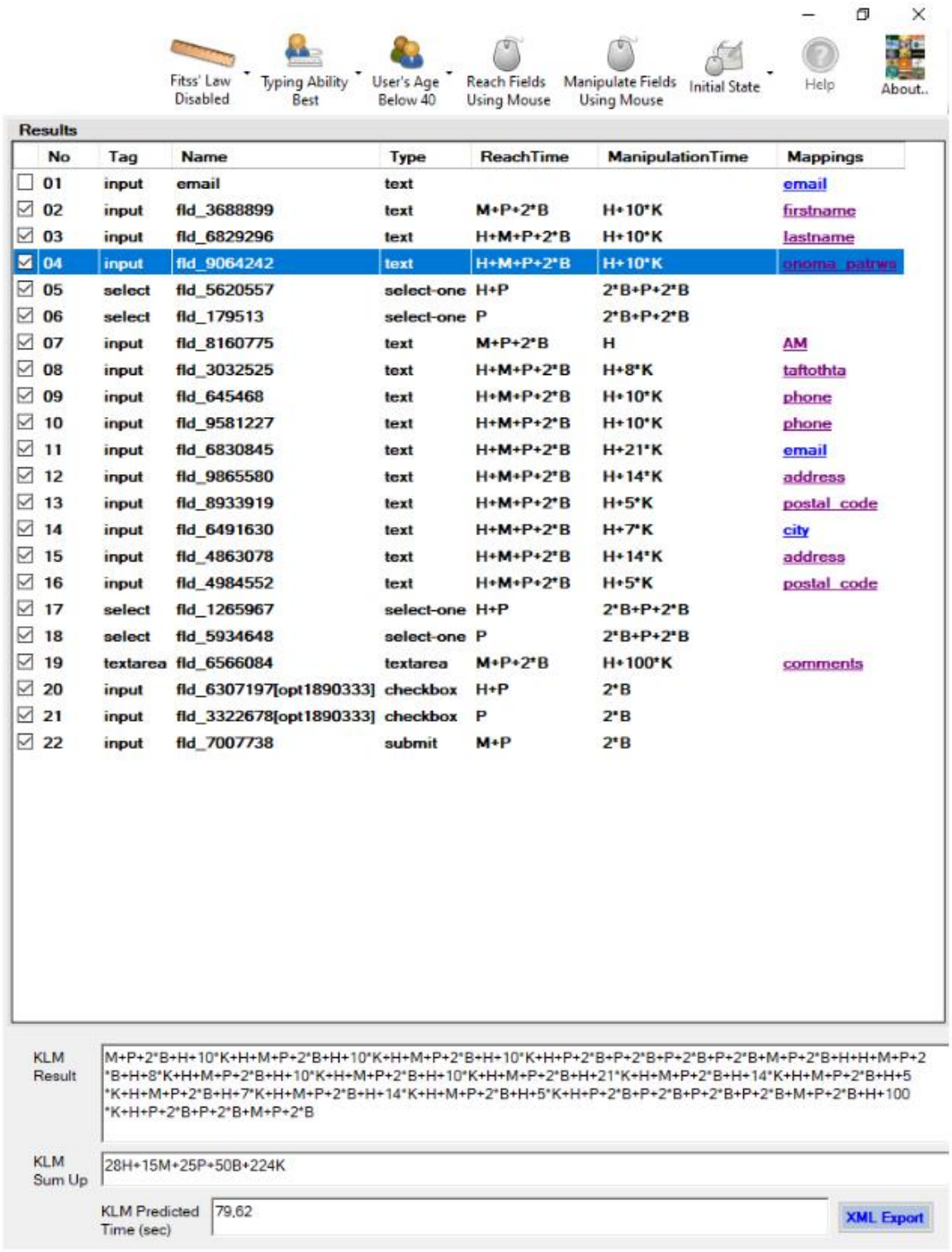


Figure 10: Best typist starts with hand on mouse, uses mouse exclusively, no Fitts' law used. Time = 79,62

Justifications:

1. If the user uses a keyboard exclusively, it saves TH time, which indicates the hand switch between mouse and keyboard. Thus, the time is significantly reduced.

2. As we see here, the same as above applies. When there are many fields to fill in with a keyboard, it is preferable to use it exclusively. The time is still better than using mouse exclusively, despite the fact that the latter starts with mouse and is best typist.

3. When a typist is poor, the TK becomes very long (1.2sec). Because he already uses the keyboard for everything, there will be many more TKs than in the first case (mouse only). So, the time is much longer.

4. Fitts' law is best applied to the cases where a mouse is used. Because it accurately measures the mouse movement, the closer the distances between choices and the larger the selection boxes, the more the time (the formula makes this clear).

Solution 2

Number	Work	KLM Time
1	Ticket type (student)	5.4 sec
2	Date	5 sec
3	Check Availability	2.5 sec
4	First Name	6.9 sec
5	Last Name	7.3 sec
6	Email Address	11.78 sec
7	Overview of Entries	2.9 sec
8	Overview of Elements	7 sec
9	Submit	2.5 sec
Total	51.28 sec	

The detailed calculation of the KLM time is calculated below:

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TH + 2TM + TP + 2TB + TP + 2TB (Επιλογή Student)     0.4+2.4+1.1+0.2+1.1+0.2= 5.4sec
TP + 2TM + 2TB + TP + 2TB (Επιλογή Ημερομηνίας)     1.1+2.4+0.2+1.1+0.2= 5sec
TM + TP + 2TB (Check Availability)                   1.2+1.1+0.2= 2.5sec
TM + TP + 2TB + TH + TM + 10TK (First Name)          1.2+1.1+0.2+0.4+1.2+2.8= 6.9sec
TH + TM + TP + 2TB + TH + TM + 10TK (Last Name)      0.4+1.2+1.1+0.2+0.4+1.2+2.8= 7.3sec
TH + TM + TP + 2TB + TH + TM + 26TK (email)          0.4+1.2+1.1+0.2+0.4+1.2+7.56= 11.78sec
TH + TM + TP + 2TB (Επισκόπηση Καταχωρήσεων)         0.4+1.2+1.1+0.2= 2.9sec
(Επισκόπηση Στοιχείων)                               7sec
TP + TM + 2TB (Submit)                               1.1+1.2+0.2= 2.5sec

Συνολικός Χρόνος = 5.4 + 5 + 2.5 + 6.9 + 7.3 + 11.78 + 2.9 + 7 + 2.5 = 51.28sec
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Figure 11: Calculation of the total KLM time