Homework – Lecture 7 Exploratory Testing

Assigned by:	Assigned on:	Deadline:
Mr. Slavchev	28.02.2020	02.03.2020, 23:59

Assigned to:

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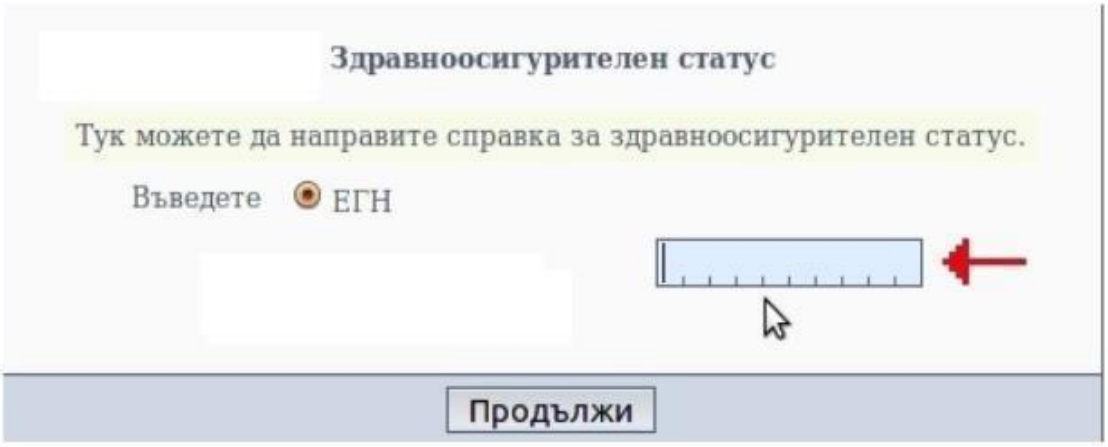
Task:

You are testing web form for government site. You need to make sure the format validation of the ЕГН (единен граждански номер) field works correct:



1. **All test ideas that you can come up with in order to fully test the EGN format validation of that imaginary" application.**
2. **Example test data for each idea. (Valid or invalid)**
3. **Explanation why would you test this – what information you hope to uncover? Here I want to see your personal motivation why you would like to make that test.**

Information found about EGN:

1. ESGRAON

Bulgaria introduced a unified system for population registration and administrative service to the population called ESGRAON (Bulgarian: 'Edinna Systema za Grashdanska Regis-tracija i Administrativno Obslushvane na Naselenieto');. This administrative system mandates that all individuals residing in the country are assigned a unique personal identification number that is used as an identifier in almost all administrative affairs. This administrative structure allows one to link individual-level information from various data sources and provides unique research possibilities. (I. Kohler, 2002)

2. The Personal Identification Number—EGN

The personal identification number is a 10-digit number that is assigned to each new-born in the district where the birth occurred, or the district where the parents (or mother)have their permanent residence. The structure of the personal identification number is shown in Figure 1. The personal identification number (EGN [in Bulgarian: 'edinen grashdanski nomer') is based on the birth data of each individual. The first two digits give the year of birth, the next two digits correspond to the month of birth. The fifth and sixth digits match the day of birth, the following three numbers show the order of the birth in the district for that specific day (It is a number between 000 and 999), and the last number is a control number used to check whether the coded personal identification number is correct. (I. Kohler, 2002)

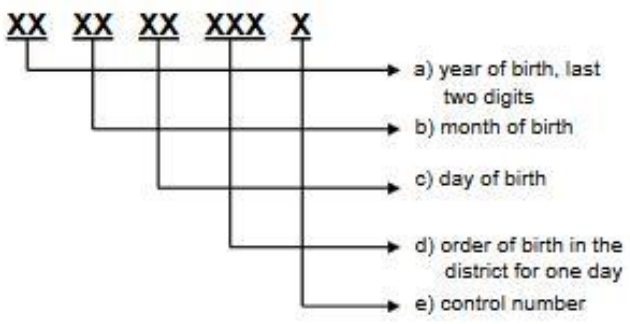


Figure 1 – Structure of the personal identification number (EGN)

The tenth digit is a checksum, calculated using the following algorithm:

1. Each digit is multiplied by its *weight* (see below)
2. The products obtained are added
3. The sum is divided by 11 (use sum % 11, not /, modulus, not division)
4. If the remainder is less than 10, the remainder is the checksum digit, otherwise the checksum digit is zero

Position	1	2	3	4	5	6	7	8	9	10
Weight	x2	x4	x8	x5	x10	x9	x7	x3	x6	

2.1 Important information about EGN's

For all individuals born before 1900, the month of birth is coded as month+20. For example, this means that if a person was born in the month of January in the 19th century, his or her month of birth is coded as 21. If the person was born in December, the birth month code would be 32. All people born in 2000 and afterwards are assigned a personal identification number in which the birth month is coded asmonth+40: For example, if a person was born in January 2000, then the two digits for month of birth in the EGN number are coded 41. If the person was born in December 2000, then the month of birth in his/her EGN number is coded 52. (I. Kohler, 2002)

3. Testing if the EGN validation form is working correctly:

Table 3.1

№	Test case	Test data	What information it provides to me?
1	Leave the EGN field blank and click on the „Продължи“ button.		Leaving the EGN field blank shows if the application will submit a query with no information entered.
2	Enter a 10 digit valid EGN of a person born after 1900.	8001010008 (10)	Entering a valid EGN based on the information above the application should accept it successfully and redirect to “Справка“ page for the entered EGN.
3	Fill EGN field with letters.	aaBBccDDff	Entering letters in the EGN field should not be a valid format, because the EGN consists only of numbers therefore an error message should be displayed.
4	Fill EGN field with letters and numbers	Aa33bb44CC	Entering letters and numbers in the EGN field should not be a valid format, because the EGN should consists only of numbers therefore an error message should be displayed.
5	Verify EGN field is mandatory or not		By this test I acquire information about that if the EGN field is a must to be filled or not, so the user can proceed to the next step. My assumption is the field is mandatory and the web form should display error message stating that the field must be filled with valid EGN.
6	Enter invalid 10 digit EGN, also trying to enter the maximum possible number in the field.	9999999999 (10)	Should not be a valid format, because the EGN consists only of numbers therefore an error message should be displayed. because month 99 and day 99 don’t exist on the calendar.
7	Enter invalid 10 digit EGN, also trying to enter the minimum possible number in the field.	0000000000 (10)	As in test № 3 I’m entering invalid EGN, but this time with the lowest possible number. I’m again expecting error to be displayed. This way I’m doing BVA as well. Correct calendar values should be between [00/01/01/ - 99/12/31/] For Year [00 – 99] – all combinations For Month [01 – 12] 01 =>&<=12 For Day [01 – 31] 01 =>&<=31. Additionally I’m checking and the boundary of “order of birth in the

			district for one day" values [000 – 999] 000 => & <= 999
8	Enter only the first six digits with valid information (year, month, day).	950904 (6)	Testing this idea to check if the system would accept an EGN number if only the date of it is correct without providing the rest of the necessary numbers.
9	Enter special characters in the EGN field.	&%_$-$+=*@ (10)	Entering special characters in the EGN field gives me information if the application displays an error, because this is an incorrect EGN format.
10	Enter space characters.		Entering space characters in the EGN field gives me information if the application displays an error, because this is an incorrect EGN format.
11	Enter EGN with wrong last digit.	8405108261	By doing the calculation in article two where the algorithm is pointed out, the last digit should be "0". The aim is to test if in that case the system would display an error message which is saying that, that is an invalid EGN.
12	Enter a valid EGN which is of a person born after the year 2000.	2041058761	By entering an EGN of a person born after the 2000 I'm checking if the application accepts the request, because adding the "+40" value to the month is a specific thing for it and the application might think it's an invalid because no such month exists.
13	Enter an invalid EGN with a future date.	2043045782	By entering an EGN with a date in the future I'm checking if the system outputs an error, because it is impossible that person is born in a time which is yet to happen. This way I'm also testing what will be the output when entering wrong calendar date.

14	Enter a valid EGN which is of a person born before the year 1900.	9921051520	By entering an EGN of a person born before the year 1900 I'm checking if the application accepts the request, because adding the "+20" value to the month is a specific thing for it and the application might think it's an invalid because no such month exists.
15	The data shouldn't be saved in browsers cookies	9202011203	I think the browser shouldn't save that kind of data to the cookies of the browser, because it's sensitive data and someone might browse or access it unintentionally. The test will consist if the data is stored in the browser cookies.
16	Application crash	9202011203	If the application crashes while the user is using it's functionality (Entering EGN and clicking on "Продължи" button), user should be redirected to the error page.
17	Clicking multiples times on the button "Продължи"		Clicking multiple times on the button "Продължи" while the EGN field is blank it should only display an error / reminder that the user has to enter a valid EGN before continuing.
18	Making the same request for identical EGN		Making the same request for identical EGN from two different instances of a single browser or a different browser should provide an error message on at least one of the instances.
19	Press "Продължи" button without selectin the radio button		Doing this test I expect to get an error which is stating that I must choose radio button type.
20	Verify that "Продължи" button acts the same when pressed by "Enter" (Keyboard) and when pressed with mouse click (Mouse)		Doing this test provides information of how the web form acts when approached with different input devices.
21	Check if user can select radio button		Check if the GUI is working correctly for the user.

22	Check if radio button of type “EGN” is working correctly		By selecting the radio button of type “EGN, I assume that the application should enter EGN state and should await a valid EGN to be entered so it can proceed to the next step.
23	Entering wrong EGN and displaying error message	2043045782	When user enters wrong EGN and an error message is displayed his information should be left intact.
24	Justified EGN values	9202016360	When user enters EGN all the numbers in the EGN field should be justified in their section. This is done because no one will be satisfied with overlapping numbers and not knowing in which section is specific number, this may lead to confusion.
25	Check if the web form is correctly positioned on the web page		Checking that gives me information about how the user experiences visually the web form.
26	Check the text alignment with the radio button, EGN field and „Продължи“ button		Verifying that GUI of the web form looks acceptable to the user.
27	GUI colors		If I’m provided with an SRS documentation I’m going to check if the colors of the selected functionality and fields are corresponding to the document.
28	Access with keyboard		User should be able to access the radio button, the field and the button “Продължи“only by using his keyboard.
29	Check ctrl + C and ctrl + V	9202012365	Check if ctrl + C and ctrl + V keyboard functions work if it is specified that this is possible way of entering information in the EGN field and copying information out of the field.
30	Check if copy/paste mouse option works	9202012175	Check if user is allowed to copy and paste in the EGN field by using mouse controls. (specification dependant)
31	Check performance of a single query		Doing this test will give me information on how the application will process my request to the server (fast/slow).
32	Test the application under a lot of load		Doing this test will result in information about how the application

			(server) acts under a lot of request to it.
33	Check if EGN field is highlighted		Highlighting the field tells the user to put more attention to that field.
34	Test the web form under different web browsers	Chrome, Firefox, Safari, IE 9202012365	This way we are making sure that users who are using different platforms would be able to access the web form.
35	Verify that the web form runs under partial trust scenarios		If the web form is under attack from outside the user information should be left protected and his experience with the app should not be disturbed. A reason for testing the web form vulnerability.
36	Check how the web platform is acting on a different hardware setup		Checking that I'm making sure that the user would be able to access the web form no matter what kind of platform he is using unless it is specified he needs minimum hardware requirements to run it.
37	Check if "Здравноосигурителен статус" page loads correctly		By checking that if the web form (page) "Здравноосигурителен статус" works, I'm ensuring that the user will be able to log successfully on to it.
38	Verify that the web form is acting normally in windowed mode		Users may want to window the web form that's why I should check if the form is acting normally and there are no deviations.
39	Check that after a user has made an inquiry and goes back to the previous page a prompt window is shown asking to resend the request		When user has already made an inquiry for a EGN and tries to go back using the backwards button of the browser a prompt window should pop up asking him if he wants to resend his request to the server.
40	Check if users refreshes the page radio button and EGN field are blank	0906100376	When user chooses EGN type radio button option and fills the EGN field without pressing "Продължи" button, but refreshes the page all information should be blanked out and he should start over.
41	Check if user can navigate with arrow keys through the EGN field		Those four test cases will give me information about how the EGN field handles keyboard and mouse input / selection / deletion of the entered numeric values.
42	Check if user can use backspace keyboard button to delete numbers		

43	Check if user can use the delete button to remove a number		
44	Check if user can highlight number/numbers using the mouse		
45	Check if user can navigate to radio button, EGN field and „Продължи“ button using the TAB keyboard button.		
46	Entering EGN with the same first three numbers as previous entered EGN might suggest a list of previous entered EGN’s	9202012365	The EGN field might be set – up with an option of selecting previous entered EGN’s, but as I mentioned in a previous test case EGN is sensitive information for the user, so this kind of option is not good to exist in such kind of form, but it has to be tested if there is a possibility of existing.

I'm assuming that the EGN field is limited to 10 characters that is the reason why I'm not making a test where I should add more than 10 digits. By the look of it that would be impossible. It's probably limited by the application.

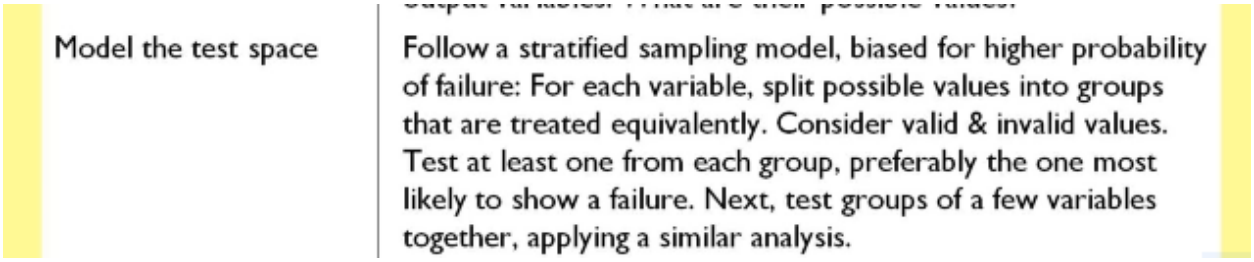
Additionally I'm not trying to test the EGN with negative numbers, because putting a "-" before a number would take 1 space which would lead to EGN number not being 10 digits but 9 and the system will recognize the "-" as a special character which would lead to an error. This also refers to testing EGN with a float number.

I've also used the automatic EGN generator on this page:
https://georgi.unixsol.org/programs/egn.php

Also I'm not sure if I should do a test for every possible combination of wrong dates for example:

Year	Month	Day
Wrong	Correct	Correct
Wrong	Wrong	Correct
Wrong	Wrong	Wrong
Wrong	Correct	Wrong
Correct	Wrong	Wrong
Correct	Correct	Wrong
Correct	Correct	Correct
Correct	Wrong	Correct

That's an additional 8 more cases plus if we add the "order of the birth in the district"and the control number combining them with the table presented above we will get more cases. [ONLY APPLICABLE IF IT'S CORRECT.]



References

I. Kohler, J. K. (2002). Integrated Information System for Demographic Statistics 'ESGRAON-TDS' in Bulgaria. *DEMOGRAPHIC RESEARCH, 6*, 325-354. doi:10.4054/DemRes.2002.6.12