

COMPUTER APPLICATION "STUDENT DIARY"

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ABSTRACT

Modern technologies which are supposed to facilitate the learning process of young people, have become an integral part of everyday education. The challenge for learners today, however, is the true flood of information they are confronted with and which they must master to filter efficiently in order to remain successful. This can lead to chaos and disorganization amongst young people. The goal of this paper is therefore to minimize the effects of this negative development through modern technologies, and thus to simplify a students day with an efficient software solution. In the course of the paper, a software, which has the goal to make the many small notes on which students record their timetables, work tasks, received grades, calculated grade point averages, etc. obsolete. All this will be available through an application called "Student Diary".

Keywords: student, diary, timetable, grades, average grades, work plan

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INTRODUCTION

The development and progress of modern society is closely connected with the development of new technologies and computer technology, as well as software. Education as one of the most important factors of development is also highly dependent on new technologies.

In the modern world, the amount of information that a person receives is many times greater than his need for them. The basic and most important role of computers and other IT tools is to reduce the amount of irrelevant information that a person should receive and think about in order for his performance in the field he deals with to be maximum. All this unnecessary information must be arranged somewhere, classified and when the need arises, it must be quickly accessible and concise so as not to draw attention to itself.

This is where the need for software that "remembers all that nonsense", as students know to say in jargon, came from. The software presented here is the least burdensome it can be, to make it easier for students to learn. Since computers have become part of the family and since young people spend a lot of time in front of the monitor, due to games, socializing and learning, the most logical place where their "notes and papers" will be saved and be at hand is the computer.

Examining applications on similar topics over the Internet, it was concluded that very few of them deal with the most important and simplest questions of students such as: "What classes do I have tomorrow?", "When is math test?", "What grades do I have in chemistry?" , "What is my GPA?", "When should I read?" And others. Because of that, the "Student Diary" software was developed.

In addition to computers, in the near future the development of this software is planned on other platforms such as Android, iOS, WEB, to become even more accessible to students, given that smartphones, tablets and various gadgets are increasingly present in the lives of the youth.

METHODS OF WORK

Since the paper deals with software development, the basic method of work is based on programming, coding. The entire work, was done in Microsoft Visual Studio 2017² in the C # programming language (C sharp). It is a newer generation programming language developed by Microsoft. The syntax is very simple and it is very convenient for the work with forms.

The software is programmed as a "multiuser" application. The basis of the entire application is the SQL database, which was built on the free internet service FreeAspHosting.³ The database consists of four tables and Microsoft SQL Server Management Studio 17 was used to manage it⁴ (SSMS).

The Bunifu Framework Toolbox was used to make the form look better⁵. The icons that are an integral part of the application are designed in Adobe Photoshop⁶ program.

This software does not require a high-performance computer, but requires a constant internet connection. This is because the database is hosted on a server which for access requires the Internet.

² <http://visualstudio.microsoft.com>

³ <https://freeasp hosting.net>

⁴ <https://docs.microsoft.com/en-us/sql/ssms/download-sql-server-management-studio-ssms>

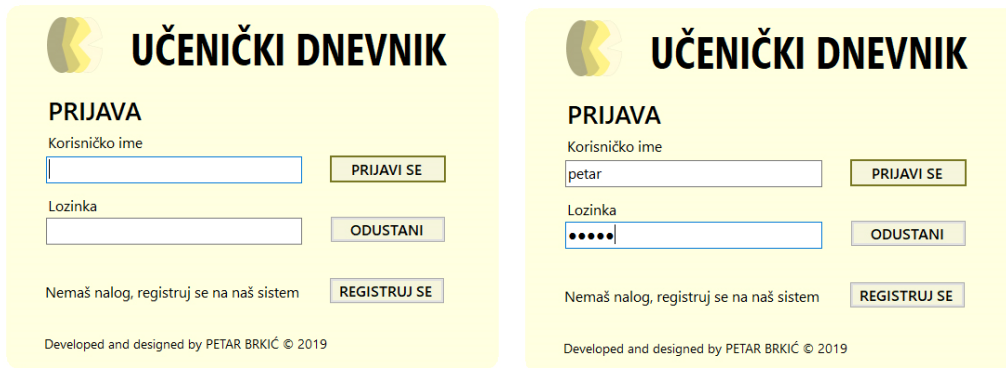
⁵ <https://bunifuframework.com/>

⁶ <https://www.adobe.com/products/photoshop.html>

RESULTS AND DISCUSSIONS

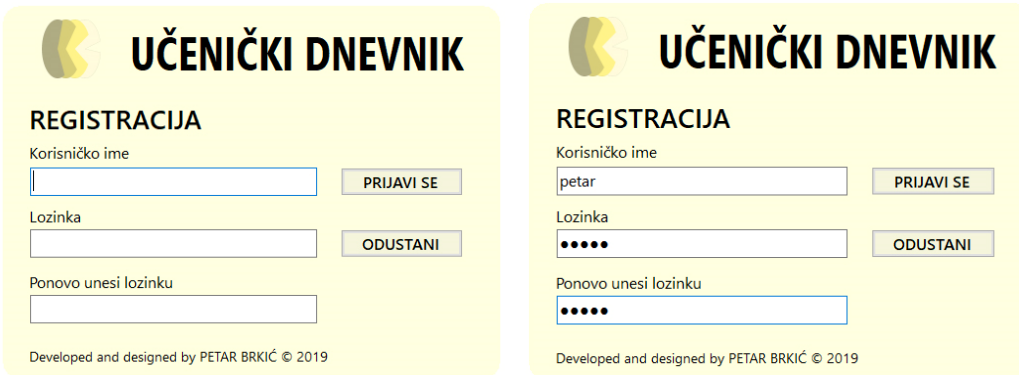
As mentioned earlier, the basic criterion for personalization of data is the user (name or nickname of the student, etc.). This data allows the software to filter data based on the user name and thus access data related only to him.

Immediately after launching the application, a user login form appears. (Picture 1).



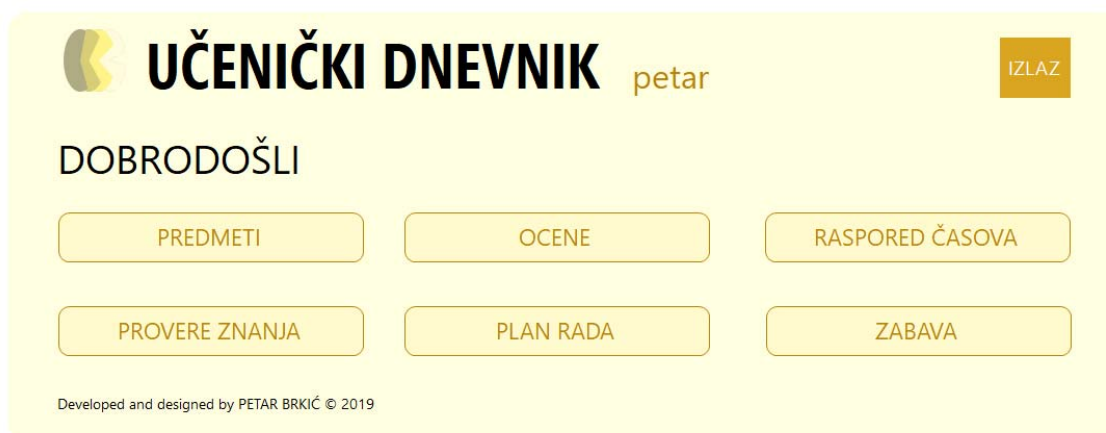
Picture 1 - Login

In case he accesses the application for the first time, the future user has the opportunity to register on the system, create his account and then a new registration form is opened. (Picture 2).



Picture 2 - Registration

After successful login or registration, the Main Menu opens (Picture 3). It contains six options. On that occasion, a connection is made with the SQL database, data is filtered based on the registered user name and the user name appears within the form. All the time the application is used, in all forms, the user name is present. This is a key detail that ensures that the user who is currently logged in to the system accesses only his data. This principle of user-based filtering allows more students to use the application at the same time.



Picture 3 - Main menu

Left-click to select the options you want. The "Subjects" button was offered first. By entering this form, a table with subjects and teachers is displayed (Picture 4). Initially, the list is empty, so it is necessary to enter all the subjects that the student attends.



Picture 4 - Subjects

Entering new subjects is enabled with the "Enter new subject" button. The window that opens contains a lot of useful information: name of the subject, name and surname of the teacher, textbook names, six places for entering the type and date of knowledge testing (written assignments, exercises, tests, etc.) and notes that can be entered with all subject-specific notes

(Picture 5). This form and table are the most important part of the application, because all other data mostly draws from them.

Picture 5 - New subject entry

If we want to change some data, e.g. we found out when there will be a written assignment from Chemistry, double-clicking on the row in the table where Chemistry is located (Picture 4) opens a window with information about the subject Chemistry (Picture 5). In the field "Type of test" we enter the written test and immediately below we choose the date when it will be. By clicking on "Save", the new data will be entered into the database. The entered object can be deleted according to the same principle.

The next option from the main menu, "Grades", opens a form in which students can see which grades they have from all subjects, average and final grade (Picture 6).

PRVO POLUGODIŠTE:										
PREDMET	OCENE									
Engleski	5	5	4	4	5				4,6	5
Matematika	4	5	3	5	5	4			4,33	4
Srpski jezik	5	5	4	3	5	4	5	5	4,44	4
Tehnicko i informaticko obr...	5	5							5	5
Hemija	4	4	5	5	5	4	5		4,57	5
Geografija	5	3	5	5	5	5			4,67	5
Fizicko	5	5							5	5
Likovna kultura	5	3	3	5	5	5	5	5	4,56	5
Biologija	5	5							5	5
Nemacki jezik	5	4	5						4,67	5

DRUGO POLUGODIŠTE:										
PREDMET	OCENE									
Engleski	5	4	5							
Matematika	3	3	5	4						
Srpski jezik										
Tehnicko i informaticko obr...										
Hemija										
Geografija										
Fizicko										
Likovna kultura										
Biologija										
Nemacki jezik										

Picture 6 - Grades

The form is divided into two parts, the first and the second semester. In order to enter the grade in the database, double-clicking on the selected subject opens a new form (Picture 7). There are nine places for entering grades.

The screenshot shows the 'UNOS OCENA petar' application. At the top right is an 'IZLAZ' button. Below the header, the user 'petar' is logged in. The subject 'Engleski' is selected in the 'Predmet' field. A 'SAČUVAJ' button is present. The 'OCENE' section contains a 3x3 grid of dropdown menus for entering grades. The values entered are: Row 1: 5, 4, (empty); Row 2: 5, 5, (empty); Row 3: 4, 5, (empty). To the right, 'ZAKLJUČNA OCENA' is 5 and 'PROSEČNA OCENA' is 4.67. An 'IZRAČUNAJ PROSEČNU OCENU' button is at the bottom right. The footer states 'Developed and designed by PETAR BRKIĆ © 2019'.

Picture 7 - Entering grades
Picture 7 - Grades entry

Clicking "Calculate Grade Point Average" will display the average for the grades entered. There is also a field "Final grade" in which the final grade for the selected subject is entered. By activating the "Save" button, grades are entered into the database, the form is closed and the application returns to the form with grades.

The next option from the main menu is "Timetable". It is a window in which the timetable is tabulated. There are Saturdays and Sundays between all working days, in case the student has some school activities on those days as well (Picture 8). Whenever the timetable is changed, the existing one can be changed by selecting the item from the drop-down menu and clicking on "Save", the new data is entered into the database.

The screenshot shows the 'RASPORED ČASOVA petar' application. At the top right is an 'IZLAZ' button. The interface displays a weekly timetable with columns for 'Ponedjeljak', 'Utorak', 'Sreda', 'Četvrtak', 'Petak', and 'Subota'. The rows represent time slots from 'Predčas' to '7.'. Each cell contains a dropdown menu for selecting a subject. Small orange square buttons are located to the right of each subject selection. At the bottom, there are four buttons: 'SAČUVAJ', 'PLAN RADA', 'PREDMETI', and 'OCENE'. The footer states 'Developed and designed by PETAR BRKIĆ © 2019'.

Picture 8 - Timetable

Next to each item in the timetable, there is a small square button whose activation can directly open a window for the desired subject. These are the same forms that were discussed in the "Subjects" part of the application (Picture 5). In this way, certain changes can be made very quickly, e.g. date of tests.

In each window, ie. form, there are buttons that can be used directly from one form to another. This is very convenient because it avoids exiting the existing window, loading the main menu and only then going to the desired form. It saves time and makes application work more dynamic.

By selecting the "Tests" option, in the main menu, students can see which tests they will have in a particular subject (Picture 9).



PROVERE ZNANJA petar IZLAZ

PREDMET	ZAKAZANE PROVERE ZNANJA - DVOKLIK ZA DETALJE					
Engleski						
Matematika	Pita	Kontrolni	Pismeni	Pismeni	Vezba	Diktat
Srpski jezik						
Tehnicky i informaticky obra...						
Hemija	Kontrolni	Pismeni				
Geografija						
Fizicko						
Likovna kultura						
► Biologija						
* Nemacki jezik						

RASPORED ČASOVA
OCENE
PLAN RADA

Developed and designed by PETAR BRKIĆ © 2019

Picture 9 - Tests and exams

The table is made up of the main column "Subjects" and six columns which contain data on whether a particular subject has scheduled tests.

By double-clicking on the selected item, we will open a form in which we can see in detail when it will be, on what date (Picture 10). This shows the data we entered in the "Subjects" form.



PROVERE ZNANJA petar IZLAZ

Hemija petar IZLAZ

Vrsta provere 1: Kontrolni Datum 1: 9. 9. 2019

Vrsta provere 2: Pismeni Datum 2: 11. 12. 2019

Vrsta provere 3: Datum 3: Datum 4: Datum 5: Datum 6:

RASPORED ČASOVA
OCENE
PLAN RADA

Developed and designed by PETAR BRKIĆ © 2019

Picture 10 - Tests and exams, details

The "Work Plan" option, which is located in the main menu, allows students to write in free form all the details of organizing learning, doing homework, reading, etc. which are planned for a particular subject.

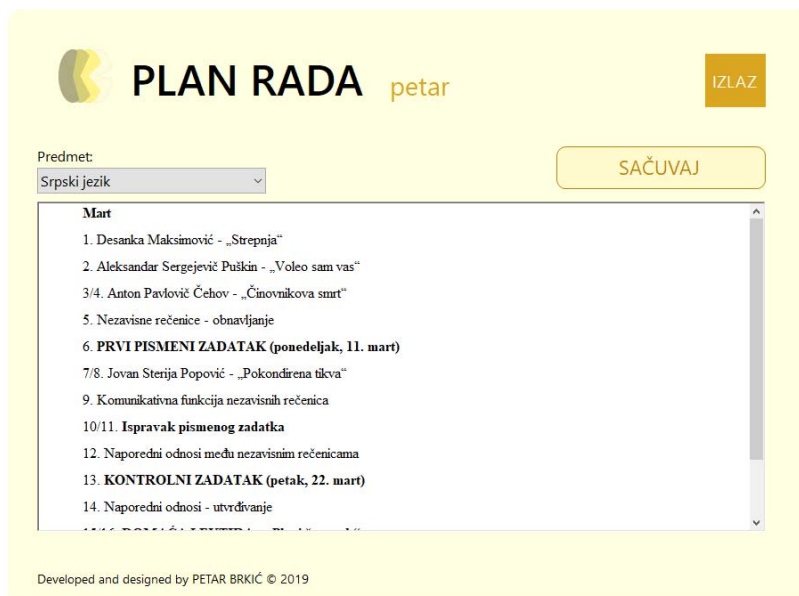
After opening the window, a form in which no item is selected will be displayed (Picture 11).



The screenshot shows a web application titled "PLAN RADA petar". At the top right is an "IZLAZ" button. Below the title is a "Predmet:" label and a dropdown menu. To the right of the dropdown is a "SAČUVAJ" button. The main area is a large empty text box for writing the work plan. At the bottom, it says "Developed and designed by PETAR BRKIĆ © 2019".

Picture 11 - Work plan

The desired item is selected from the drop-down menu and then the work plan or some other data previously entered will be displayed in the field below (Picture 12).

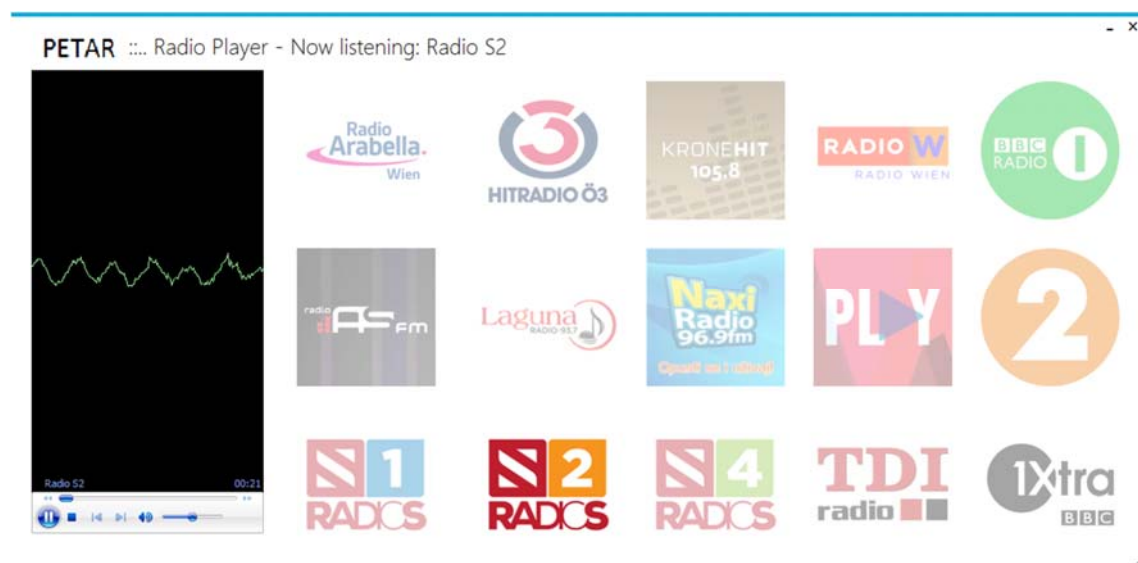


The screenshot shows the same application as in Picture 11, but the dropdown menu is now open and displays a list of subjects. The first subject is "Srpski jezik". The list includes various literary and linguistic topics, such as "Desanka Maksimović - „Strepnja“", "Aleksandar Sergejevič Puškin - „Voleo sam vas“", and "KONTROLNI ZADATAK (petak, 22. mart)". The "SAČUVAJ" button is still visible to the right of the dropdown. At the bottom, it says "Developed and designed by PETAR BRKIĆ © 2019".

Picture 12 - Work plan
Picture 12 - Work plan

The user can modify, delete or edit existing content as he likes. By clicking on the "Save" button, the data is saved for each subject individually.

At the very end, among the options from the main menu, there is "Entertainment". This part of the program is designed as a place where students can listen to music via Internet radio after finishing everything. (Picture 13).



Picture 13 - Entertainment

In the next period, it is planned that in this part of the application, students will be able to access certain Internet services, social networks, educational sites with encyclopedic content, news from the sports, culture, etc.

CONCLUSION

I worked on the "Student Diary" application for about a month. In some segments of work, such as entering and refreshing forms, especially in the part where the timetable is, I had to use to a little more complicated methods, which require a lot of coding, because I could not find a simpler way. What makes me very happy though is the fact that this method also works. Since I intend to improve this program, I will certainly implement the knowledge I acquire in the next period in this paper, simplify it and replace complicated codes that now slow down the application a bit.

Also, problems in the development occurred when connecting the application to the database. I solved the problem by using the method that I think is the best and that uses the SQL library and that communicates directly with the database (via SQL connection string). It requires a bit more of coding, but gives excellent results, especially in the speed of communication between the database and the user.

As has been said many times in this paper, the database I used is on the FreeAspHosting server⁷. The advantage of working with databases on the Internet is that it can be accessed from any place that has an Internet connection, so that its content is always available. To make this application completely "at your fingertips", I plan to make Android and iOS versions, as well as a WEB version, because smartphones and tablets are much more practical for everyday use of this type of software. That is why an online database is a very convenient option.

⁷ <https://freeasp hosting.net>

The "Student Diary" application was a great challenge for me as its author. This is the first time I've done something complex like this. So far, I have programmed smaller applications that are not so demanding. The most important result of this work, as seen from my point of view, is the knowledge I have acquired while making this application.

I also consider a success that the application itself can help students who have a problem with remembering some things for school that may look unimportant in the first place, such as timetables, test schedules, grades they have, etc.

LITERATURE

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[4] <https://www.w3schools.com/>