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# SOFTWARE ENGINEERING

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*Assignment*

Final documentation

*Instructor*

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## ABSTRACT

# "TYPING YOUR WORDS" APPLICATION



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## **1 INTRODUCTION**

In the Information Technology era, typing skill is one of the most essential skills that help people to get familiar with computers and the Internet. Besides, the need of learning new language is always the high priority of people all over the world, those who want to be more internationalized. However, one of the most challenging things about learning a new language is learning new words.

From that problem, and with the experience of using some typing applications, our group started to have an idea, which is the combination of the typing test application and new words learning.

The application not only tests the typing speed but also has a database for login user, to help them type their own words that they were allowed to input into the database. With that improvement, the application is believed to help the users to memorize the word easily, instead of just writing by hand on papers.

Overall, "Typing your words" application will help the customers to both improve typing skill and enhance language learning at the same time. It is undoubtedly more interesting than just doing either of them.

## **2 PROJECT SPECIFICATIONS IN THE NAÏVE STAGE**

### **2.1 Detailed description for “Typing your words”**

The application is developed in ASP.NET platform, using Visual Studio 2013 tools from Microsoft. We are interested in designing the application with ASP.NET MVC 5 framework.

At the beginning, the first demo will be a local web application. Later on, after the testing process going well, it will be given to the customers by being published on a web server, which supports ASP.NET.

The first version of the application will provide only English words. All users can use the application to test their typing speed; with the given time is 60 seconds. The given words are randomly chosen from the database, which stores thousands of vocabularies. However, the login users will have another privilege. They are allowed to input their own words, no matter what the language those words are. Therefore, they can basically choose either the default words from the system or their own words for the typing test.

To be more interesting, the application will divide the words into few levels, for example:

- Level 1: the most 200 common words
- Level 2: the most 400 common words
- Level 3: the most 1000 common words

Last but not least, there is a statistic table given to customers, so that they can check their last 10 performances as well as see the record of others.

So far, after several versions and user’s feedbacks, the product is believed to be more interesting and more useful for the customers.

### **2.2 Software**

As mentioned in the first part, Visual Studio is going to be used as the main development environment. In addition, Star UML is also used for Software and Database designs.

For publishing on the Internet, a web-hosting server needs to be used. There are many options for this and Microsoft Azure is probably the most famous server for ASP.NET application. The only minus point of Azure is that it is mainly used for large organizations, so the price is absolutely expensive by comparison with others. However, with the testing purpose, Azure is really worth trying, especially when they are offering some free hosting products.

## 2.3 Programming Languages

Since this is a Web application, there are few languages that must be known.

### 2.3.1 Client side

- For the graphic user interface, the strong knowledge of **HTML**, **CSS** are needed. Moreover, ASP.NET support **Bootstrap** framework for HTML so the developers need to learn about Bootstrap responsive too.
- To interact with the server, and to get the speed of typing test, **JavaScript** and **Jquery** library need to be used as the client side scripting language.

### 2.3.2 Server side

- In order to use ASP.NET MVC, our developers decided to use **C#** as the server side scripting language, and **SQL** as the structured database query language.

## 2.4 User Interface

### 2.4.1 Wireframe

The application has several pages, which are designed by the designer of the team. At the beginning, we are using *moqups* to sketch our wireframe before coding it. The sketch of the main page is given below:

- **Anonymous User:**

## TYPING YOUR WORDS

293 × 57

☒ Top 200 words  
☐ Top 400 words  
☐ Top 1000 words

WORDS SAMPLE APPEAR HERE!!!

TYPE HERE

REFRESH

TABLE OF HONOURS

▼ USERS	▼ SPEED	▼ TIME
User 1	70	03/05/2015
User 2	60	03/05/2015
User 3	50	03/05/2015

- Authorized User:

## TYPING YOUR WORDS

293 × 57

☐ Top 200 words  
☐ Top 400 words  
☐ Top 1000 words  
☒ USE MY WORD


WORDS SAMPLE APPEAR HERE!!!

TYPE HERE

REFRESH

Add new word(s)

Log out



### Your last 10 performances

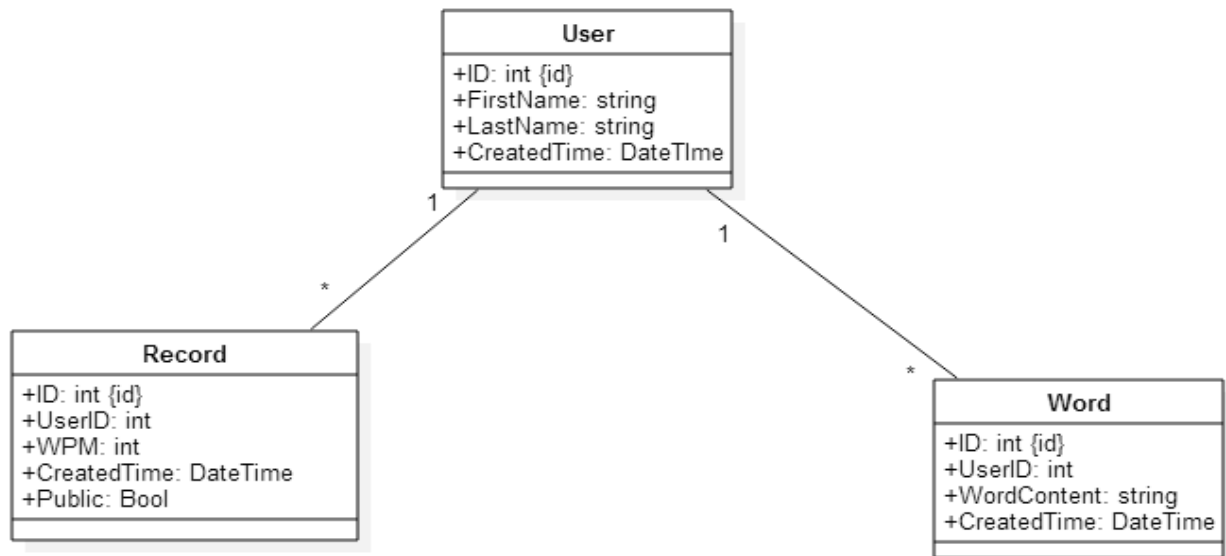
▼ Speed	▼ Time
45	5/3/2015
42	5/3/2015
54	5/3/2015
64	5/3/2015
67	5/3/2015
86	5/3/2015

[Learn how to type with 10 fingers](#)



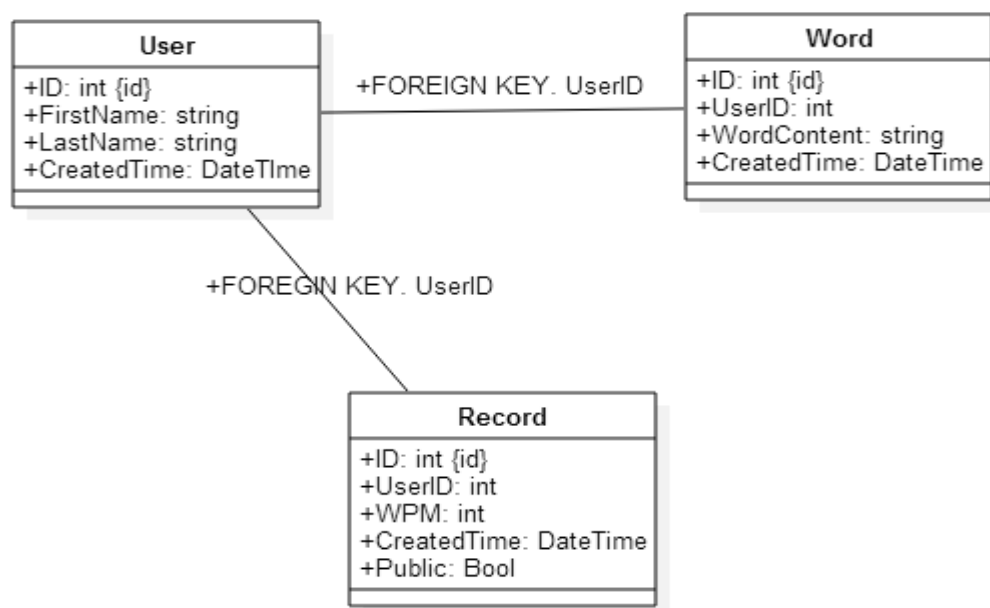
## 2.5 Models Design

At the beginning, the Models Design is given below, and of course, it should be improved in case of necessary:



## 2.6 Database Design

According to the Models Design, database is smartly created using Entity Framework, with 3 main tables:



## 2.7 Algorithm for the program

### 2.7.1 Counting Words

The algorithm for the program is mainly applied for the calculation of WPM (words per minute). The program will count the number of corrected words typed by users in a given time (60 seconds). By triggering the space button, the program will recognize the input. The algorithm is written in Javascript and JQuery.

### 2.7.2 Request words from the database

The program will check if the user is authorized. If the user is not authorized (anonymous), the random words are generated from the default words. Otherwise, if the user has input their own words, they can choose either the default words or their.

### 2.7.3 Sample snippet of code

Some of the snippets written by our team developers are given below by using the above algorithm and idea:

#### a. Start the counting program

```
function startPrg() {  
    $('#typed').keydown(function (evt) {  
        // total of input characters  
        numChar++;  
        $('#result3').val(numChar);  
  
        if (evt.which === 32) {  
            // total of words user has typed  
            totalWords++;  
            // update info  
            $('#result2').val(totalWords);  
            $('#result1').val(correctWords);  
  
            // assign the class for the current index  
            word = "#word" + crtIndex;  
            $(word).removeClass("current");  
  
            // check the condition if the user type right
```

```
        if ($('#typed').val() === inpMsg[crtIndex])
        {
            correctWords++;
            $('#result1').val(correctWords);

            // paint the color for the correct word
            $(word).addClass("right");
        }
        else
            // paint the color for the wrong word
            $(word).addClass("wrong");
    }
})
```

#### b. Stop the counting program

```
function stopPrg() {
    $("#given").fadeOut("normal", function () {
        $(this).empty();
    });

    $("#given").fadeIn("normal", function () {
        $(this).append("<center><h1>Congratulation!!</h1></center>");
    });

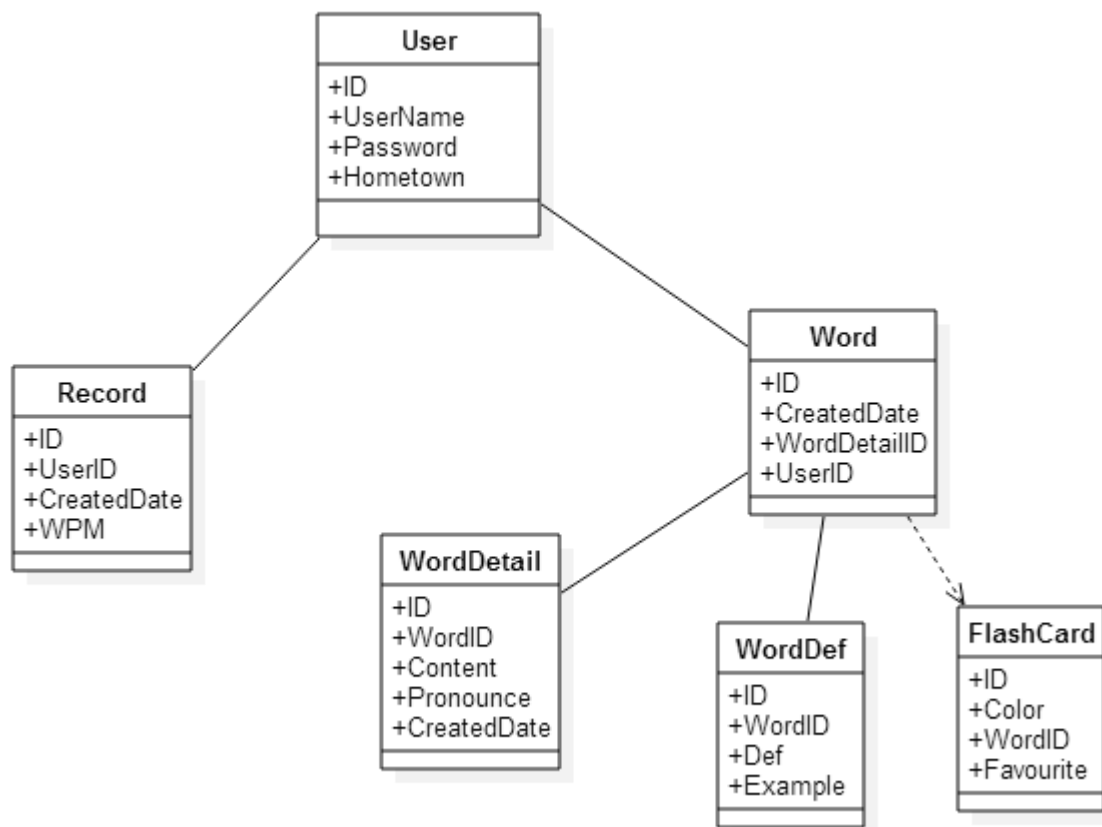
    $('#result1').val(correctWords);
    $('#result2').val(totalWords);
    $('#result3').val(numChar);
}
```

### 3 PROJECT SPECIFICATIONS IN THE FINAL STAGE (IMPROVEMENT ONLY)

#### 3.1 Functionalities

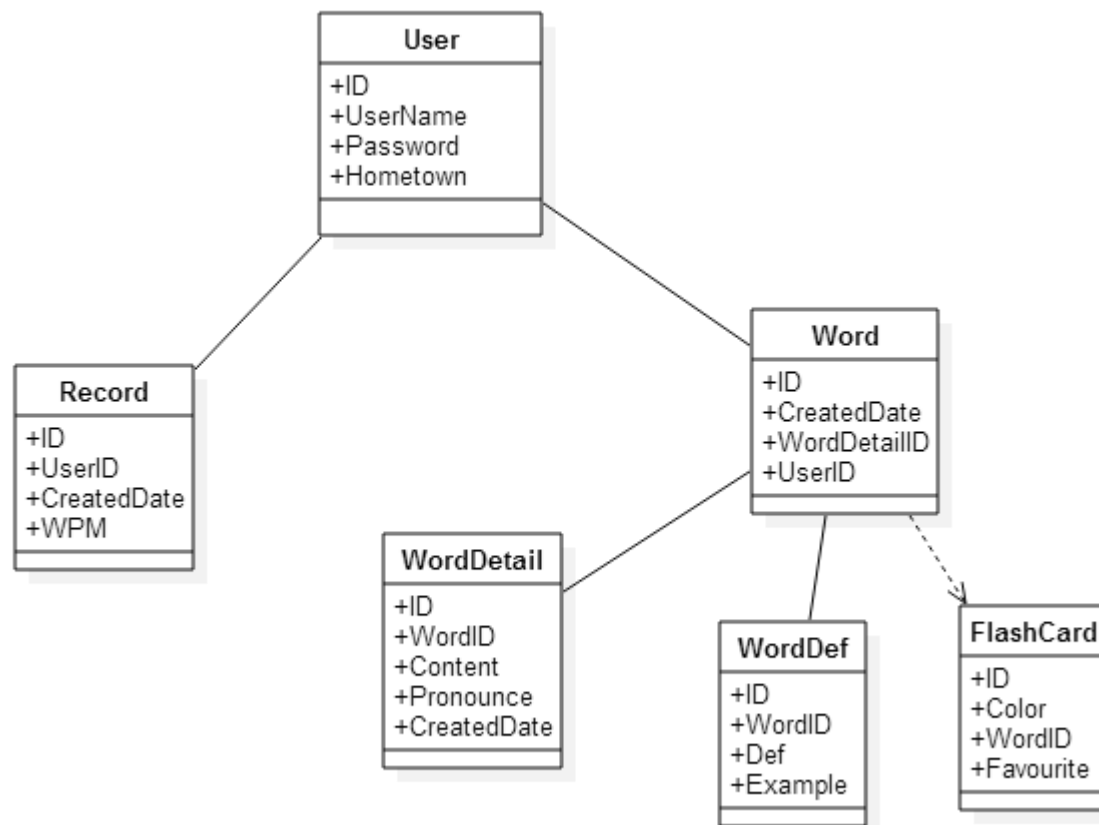
- Words database for user
- Flash cards

#### 3.2 Model design



#### 3.3 Database Design

According to the Models Design, database is smartly created using Entity Framework, with 3 main tables:



## **4 CONCLUSIONS**

The project seems quite simple at the beginning, but step by step, it is growing up quickly, and of course, many components must be changed. Database, Model and even project plan has changed in order to develop the project.

This is the reason why software developer must learn about the Project Management, Software Model to make the project feasible, and more successful.