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Design Of An Automated Tool For Program Evaluation System

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Abstract:

In manual assessing of program may find many defects, it is a laborious and time consuming process. In addition, it may not be effective in finding certain classes of defects in program. In order to overcome its drawback, automation tool is used to evaluate program. Automated tool can be useful for both students and staff to provide ranking, quickly, evaluate as much as accurately and repeatedly. This paper presents an experience of automatic assessment of programming language using automatic tool.

Keywords: *CodeDomProvider, CompilerParameters, CompilerResults, GenerateExecutable, ICodeCompiler, output assembly*

Introduction

The objective of this tool is to develop a web application that will evaluate C# /Visual Basic/ JScript program automatically. The benefits of this tool are to reduce the workload of instructors; Students can write a program and execute it in the web itself (No need of compilers). This approach contributes to build a strong foundation for the student`s life-long learning. Students get themselves more involved into their own learning process.

Automation is the use of control systems and information technologies to reduce the need for human work. Assessment is the systematic and ongoing method of gathering, analyzing and using information from measured outcomes to improve student learning.

Automated assessment system (ASS) allows students to get the problem, solve programming exercises and to submit their solutions. The correctness of the submissions is determined by syntax checking

The primary purpose behind the development of online compilers is the mobility that they provide to programmers. Because online compilers require only a web browser and internet connection to access and edit source code, using an online compiler has made it significantly easier for programmers to work on projects on multiple computers and/or devices. This is in contrast to conventional compilers which require programmers to set up and store their source code on a single computer.

Proposed Methodology

This work suggests the automated assessment for programming language. Users can view the performance of students.

Staffs can add the language and set the program`s question to the database. Staff can view the performance of students and staff can use a compiler to detect syntax errors and give marks.

Student need to send request to the staffs. The staffs need to approve the students. The staff can also add the students. Staff approved or staff added students only have the access to this tool. Students choose the type of programming language. Then they get the program questions from the database automatically.

Students choose the type of programming language and question, solve the problem and submitted the solution. After student finished their program, they submit the program; the program will automatically go to database. Student can compile their programs and detect syntax errors.

Services To Students

This tool is developed to help the students to View Programmatic Questions added by their Staff. Students can enter the answers for the program and run the program.

They can register their details and send request to the Staff.

- These requests need to accept by Staff.
- If the Staff accepts the request then Students easily login and view their Programmatic Questions.
- Students enter the answers for that Programmatic Questions and Run these Programs using this Online Compiler.
- The answers can be View and Updated if needed.
- Students can be Updated Password if needed.

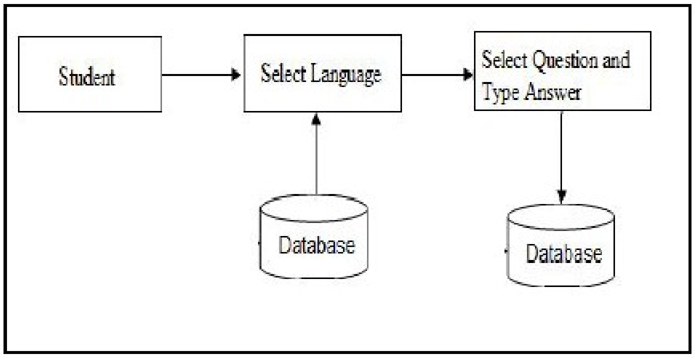

Figure 1: Diagram for student module

Services To Staffs

This tool is developed to help the staffs to add the Programmatic Questions, View Student Answer, Run these Answers and give the marks.

They can register their details with User Name and Password.

- Staffs add Question.
- The Questions can be View and Updated if needed.
- Staffs add Students or accept Student requests.
- View Students. (Exam Attended, not Attended, All Students).
- They can View Students Programmatic Answers, Run their Programs and give the Marks.
- Staffs can be Updated Password if needed.

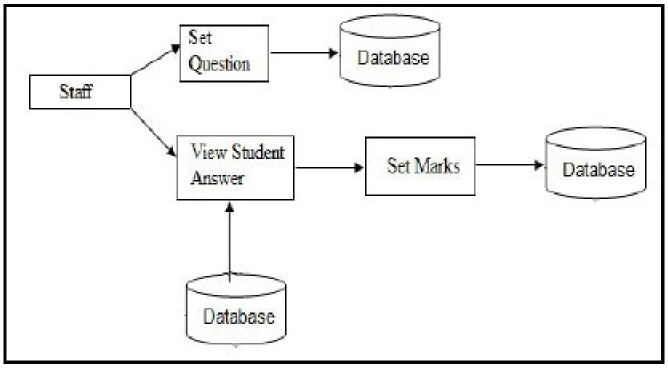

Figure 2: Diagram for staff module

Online Compiler Classes

The following Important classes and their properties are used to compile programs in Online.

CodeDomProvider Class

A CodeDomProvider can be used to create and retrieve instances of code generators and code compilers. Code generators can be used to generate code in a particular language, and code compilers can be used to compile code into assemblies.

CompilerParameters Class

Represents the parameters used to invoke a compiler.

A CompilerParameters object represents the settings and options for an ICodeCompiler interface.

- GenerateExecutable

  Set true if an executable should be generated; otherwise, false.
- output assembly

  The name of the output assembly.

CompilerResults Class

Represents the results of compilation that are returned from a compiler.

This class contains the following information about the results of a compilation by an ICodeCompiler interface implementation:

- The CompiledAssembly property indicates the compiled assembly.
- The Evidence property indicates the security evidence for the assembly.

- The PathToAssembly property indicates the path to the compiled assembly, if it was not generated only in memory.
- The Errors property indicates any compiler errors and warnings.
- The Output property contains the compiler output messages.
- The NativeCompilerReturnValue property indicates result code value returned by the compiler.
- The TempFiles property indicates the temporary files generated during compilation and linking

Conclusion

The objective of this tool is to develop a web application that will compile C#/Visual Basic/JScript program automatically. That is No need of compilers and any other software installation. Online compilers require only a web browser and internet connection. A competent student can use a compiler to detect syntax errors. In fact, many students tell us that they finally appreciate compiler error messages when they are trying to remember syntax during the written exam. Increase the students testing skills by allowing students to understand and submit their own programs.

This approach contributes to build a strong foundation for the student's life-long learning. Students get themselves more involved into their own learning process.

This system is designed in such a way that the present need of the organization is satisfied.

In Future, the higher options can be included in the system.

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