

Tracking Online Assessments through Information Visualization

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Abstract:

We present an strategy and a program to let instructors observe several main reasons relevant to on the internet assessments, such as student actions and analyze excellent. The strategy includes the signing of essential info relevant to student connections with the program during the performance of on the internet assessments and uses information creation to emphasize information useful to let instructors review and improve the whole evaluation process. We have focused on the development of actions styles of students and conceptual connections among analyze items. Furthermore, we have led several tests in our staff in order to evaluate the whole strategy. In particular, by assessing the information creation maps, we have recognized several previously unknown analyze strategies used by the students. Last, we have recognized several connections among questions, which gave us useful reviews on the analyze excellent.

SYSTEM ANALYSIS

Object-oriented research is concerned with creating program technological innovation requirements and requirements that indicated as a body item, versus the traditional information or efficient opinions of techniques. It is the procedure of interpreting the issue in terms of objects: real-world things with which the

program must communicate, and selection program things used to discover various remedy solutions. The natural fit of growth things to real-world things has a big impact here.

Object-oriented Analysis can generate the following benefits:

Maintainability through simple applying to the real life, which provides for

less research effort, less complexity in program style, and easier confirmation by the user

Reusability of the research relics which helps you to save some time to costs; and with regards to the research technique and growth terminology,

Productivity profits through direct applying to features of Object-Oriented Programming Dialects.

3.1. SOFTWARE REQUIREMENT SPECIFICATIONS

Software Need Requirements is the beginning of the program creating activity. As program increased more complicated it became obvious that the goal of the whole program cannot be easily understood. Hence the needs for the importance stage occur. The program venture is started by the consumer needs. The Software Need Requirements is the means of converting the ideas of the thoughts of clients (the input) into a official papers (the outcome of the importance stage.)

3.1.1. Purpose

To create a strategy or program to let investigators observe several main reasons relevant to on the internet assessments, such as student activities and evaluate excellent.

3.1.2. Scope

The suggested strategy is designed to collect information concerning the learner's activities during on the internet assessments. Through this program, teacher can sketch a lot of understanding such as for which type of concerns students taking a longer period, how individual is responding to whether he is wondering, etc. The program can also be extended to recognition of connection among concerns and recognition of being disloyal.

3.1.3. Objective

The primary objective of Tracking on the internet assessments through Data Creation is to let investigators observe several main reasons relevant to on the internet assessments, such as student activities and evaluate excellent.

- To current a means for understanding development.
- To offer a menu-driven, user-friendly user interface.
- To offer Robustness

3.1.4. Present System

- In purchase to show students how to improve their shows on arranged assessments, in the past, several tests have been carried out to track learners' activities during assessments by using the think-out-loud method
- Learners were informed of the try things out and had to speak during the evaluate to explain what they were thinking, while an owner was saving their words using a record recorder

Limitation:

- Think-out-loud technique might be quite obtrusive, since it requires students to alter their activities to be able to history the details to evaluate, which might go away the try things out goals, since it contributes significant disturbance in the monitored information.

3.1.5. Proposed System

We current a remedy allowing the producing of learners' habits during on the internet assessments without showing them of the actual try things out and, consequently, without asking them to alter their activities, which potentially makes more genuine results.

3.2. FUNCTIONAL REQUIREMENTS

The performance can be carried out in two stages- LoggingFramework and Log Analyzer program.

INPUT: The feedback to the program is the Tracking Online evaluate.

Processing:

- The objective of the Signing Structure is to collect all of the student activities while surfing around web pages of the evaluate and to store raw details in a set of log data files in XML structure.
- Log Analyzer is a stand-alone program that examines the records to be able to sketch out details from them and to graphically signify it.

OUTPUT

- Graphical reflection of on the internet evaluate illustrating Learner’s activities and evaluate excellent.

3.3. NON FUNCTIONAL REQUIREMENTS

Performance: User needs are to be reacted quickly and place watermark into unique picture and sketch out watermark from watermarked picture within one second.

Cost: The price of service and maintenance should be minimum. As this item uses all open sources tools to create, the price production is low.

Software Requirements:

Language	:	Java (JDK1.6)
J2EE	:	JSP & Struts1.2
Scripting CSS	:	Java Program &
Operating System	:	Microsoft Windows 2000/XP
IDE	:	My Surpass 6.6
Server	:	Tomcat5.5
Database	:	MySQL

Hardware requirements:

Processor	:	Intel Pentium 4
RAM	:	256 MB
Hard Disk	:	40 GB

3.4. SECURITY REQUIREMENTS

The basic security prevents are Verification, Permission, Reliability, and Accessibility Management.

Authentication: To guarantee that information comes from a particular party.

Authorization: It is the procedure of deciding if someone or something is allowed to have entry to a service or a source.

Integrity: It is the procedure of avoiding, discovering inappropriate adjustment of details during or after transportation.

Confidentiality: To help protect a visitor's identification or information from being read.

Access Control: It is a much more common way of referring to managing entry to a source.

3.5 FEASIBILITY REPORT

Introduction:

A feasibility research is a high-level pills edition of the whole System research and Design Process. The research starts by identifying the issue description. Practicality is to determine if it's worth doing. Once a popularity issue description has been produced, the specialist produces a sensible model of the program. A search for solutions is examined carefully. There are 3 parts in feasibility research.

Technical Feasibility:

Evaluating the specialized feasibility is the hardest part of a feasibility research. This is because, presently, not too many specific style of the program, creating it difficult to get access to problems like efficiency, expenses on (on consideration of the kind of technological innovation to be deployed) etc. A number of problems have to be regarded while doing a specialized research. Understand the different techniques engaged in the suggested program before beginning the venture we have to be very clear about

what are the techniques that are to be needed for the growth of the new program. Find out whether the company currently offers the needed techniques. Is the needed technological innovation available with the organization?.

Operational Feasibility:

Proposed venture is beneficial only if it can be turned into computer that will meet the companies managing requirements. Basically, this evaluate of feasibility demands if the program will work when it is developed and installed. Are there major limitations to Implementation? Here are concerns that will help evaluate the running feasibility of a project:

Is there sufficient support for the venture from control from users? If the current program is well liked and used to the level that persons will not be able to see reasons for modify, there may be level of resistance.

Are the current business methods suitable to the user? If they are not, Customers may welcome a modify that

will bring about a more efficient and useful techniques.

Have the individual been engaged in the planning and growth of the project?

Early participation decreases the chances of level of capacity the program and in common and improves the probability of successful venture.

Since the suggested program was to help reduce the problems experienced. In the current manual program, the new program was regarded to be efficient possible.

Economic Feasibility:

Economic feasibility efforts 2 think about the expenses of creating and applying a new program, against the advantages that would collect from having the new program in place. This feasibility research gives the top control the financial justified reason for the new program. A simple financial research which gives the real comparison of expenses and advantages are much more significant in this case. In addition, this shows to be a useful referrals factor to compare real expenses as the venture moves along.

There could be various types of intangible advantages due to automated. These could include increased customer support, improvement in item excellent better creating decisions timeliness of details, speeding up activities, improved precision of functions, better certification and certification, faster collection of details, better worker spirits.

Chapter 4

SYSTEM ARCHITECTURE

4.1. SYSTEM ARCHITECTURE

The product is consisting of a LoggingFramework and a Log Analyzer program. The former, depending on the AJAX technological innovation, records and records all of the learners' relationships with the e-testing system interface(running in the Web browser). It can be instantiated in any e-testing system and is further consisting of a client-side and a server-side factor. The latter is a stand-alone program that examines the records to be able to draw out details from them and to graphically signify it.

4.1.1 The Signing Framework

The objective of the Signing Framework is to collect all of the student activities while surfing around websites of the analyze and to store raw details in a set of log data files in XML structure. The framework is consisting of a client-side and a server-side factor. The former factor is accountable for “being aware” of the activities of the student while s/he is surfing around the test’s WebPages and for submitting details related to the taken activities to the server-side factor. The latter gets the details from the consumer and makes and stores log data files to the hard drive. Despite the required interaction stage, due to the option AJAX, it has been possible to apply the client-side part of our framework without creating plug-ins or exterior segments for Web ie. JavaScript has been used on the consumer to catch student relationships, and the interaction between the consumer and the hosting server has been applied through AJAX method calls. The client-side programs are added to the e-testing system WebPages with little effort by the designer. The occasion details is collected on the Web internet browser and sent to the hosting server at regular durations. It is important

to note that the use of the JavaScript segments for taking activities does not prevent other programs packed in the site to run successfully. The server-side factor has been applied as a Coffee Servlet, which gets the details from the consumer and keeps them in an XML papers that is written to the hard drive when the student provides in the analyze. The Signing Framework can be instantiated in the e-testing system and then allowed through the configurations. The details Style used for the log details is quite easy and is proven in Fig. 6. The details is structured per student analyze period. At this stage, the login name (if available), IP address of the student, period identifier, and broker details (browser kind, edition, and managing system) are signed. A period factor contains a record of occasion components. The details about user relationships are the following:

- event kind,. HTML resource item involved in the occasion (if present),
- mouse details (pressed option and coordinates),
- timing details (time seal of the event), and

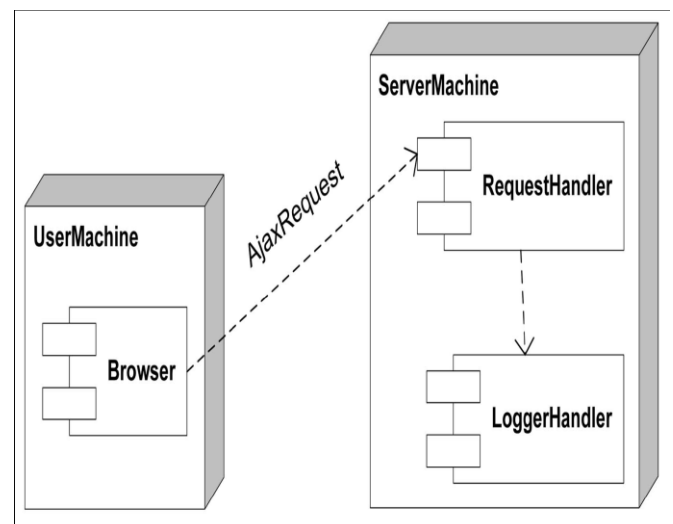
- more details particular of the occasion, i.e., for a “response” occasion (a reaction given to a question), the issue and option identifiers with the sign of whether the reaction was right or wrong are registered.

An important issue in logging is the log size. If an try things out has a large set of students and the analyze is consisting of many concerns, log data files can reach big styles. A configurations system, such as the following configurations settings, has been designed to be able to reduce log sizes:

- list of activities to catch,
- subset of features for each occasion,
- sections of the websites (divs or desk cells) to be supervised as occasion sources,
- time period between two details signals from the consumer to the hosting server, and
- sensitivity for rabbit motions (short motions are not captured).

On the consumer part, everything can be done in the Web internet browser.

The JavaScript segments for occasion taking are dynamically produced on the hosting server according to the configurations settings, are downloadable, and run in the internet browser translator. Data are sent to the hosting server through an AJAX ask for. On the hosting server part, a factor known as RequestHandler gets the details and provides them to a factor known as LoggerHandler, which arranges the XML papers in memory and eliminates it to the hard drive whenever a student analyze period completes. The dwelling of the framework is graphically showed in Fig. .



4.1.2 The Log Analyzer Application

The details research and analyze creation features are conducted by a Web-based stand-alone program, additionally organised on the same hosting server of the

Signing Framework, which requires as feedback the XML log data files. The Log Analyzer Application is consisting of two modules: the Question Website and the Data Turbine. The Question Website factor features concerns on the log data files to be able to obtain the preferred details as an example of the details model . Since the log data files are in XML structure, the concerns necessary to perform the above function have been indicated in the XQuery terminology and have been conducted on the log data files by using an performance of the JSR 22—XQuery API for Coffee. Once the details in the structure proven in Fig. 6 are acquired, these are given as feedback to the Data Turbine factor. This factor has been applied through a Coffee Servlet, which requires the identifier of the student whose analyze is going to be examined as a parameter. The factor dynamically produces the chart and profits it in the PNG structure. To produce the maps, the Conventional Gadget Tool set (SWT) API has been used. The option of dynamically building maps decreases the space necessary for the storage of the images: for caching requirements, only pictures acquired

within the internet browser period are stored on the hosting server and are removed at the end of the period. With this strategy, the calculations necessary to create each imagined chart is implemented once per analyze research period, even when the same chart is imagined more times during the same period.

Chapter 5

IMPLEMENTATION

A venture is a sequence of activities that aim at fixing particular problems within a given period of your energy and energy and in a particular location. The activities include time, money, human and material sources. Before accomplishing the goals, a venture goes through several levels. Implementation should take place at and be incorporated into all levels of the venture pattern.

Implementation is the stage where all the organized activities are put into action. The most crucial stage in accomplishing a new successful system and in giving assurance on it for the customers that works wisely.

The system can be applied only after through analyzing and if it is found to perform according to the requirements. It contains meticulous planning, research of the current system and its restrictions on performance.

A system applying the suggested strategy. The system records all the relationships of students with the e-testing system user interface. In particular, it records the event of issue surfing around and responding to activities by the students and uses these details to imagine maps containing a date evaluation of assessments. Other than determining the most frequently employed techniques, the teacher can determine their efficiency by correlating their use with the ultimate analyze ratings. Moreover, the suggested system helps instructors to recognize connections among questions: if a issue contains a recommendation to fix other concerns, this is made easily noticeable in the maps. Last, we give a first look at the way the body can be used for discovering illegal habits from the students, such as

being disloyal by viewing on others' displays and gaming-the-system efforts. The product is Web centered and depends on the AJAX technological innovation to be able to catch all of the learners' relationships with the e-testing system user interface (running in the Web browser). The product is consisting of a logging framework that can be instantiated in any e-testing systems and a stand-alone program that examines the records to be able to draw out details from them and to graphically signify it.

Instantiation of the Signing Framework:

The Signing framework has been instantiated in an current Web-based e-testing system, known as Online Test, which is used for assessing the learner's knowledge by creating (the tutor) and taking (the learner) online assessments depending on multiple-choice issue types. Online Test switches into the traditional three-tier structure of the most typical J2EE Web programs. The Jakarta Struts framework has been used to support the Style 2 design model, a difference of the

traditional Style Perspective Operator (MVC) strategy. Struts provides its own Operator factor and communicates with other systems to provide the Style and the Perspective. In our design option, Struts works with JSP for the Perspective, while it communicates with Hibernate, a highly effective framework for object/relational determination and query service in Coffee, for the Style. The program is completely available through a Web browser: no plug-in set ups are needed, since it only provides completely available HTML value and the involved client-side programs comply with the normal ECMAScript terminology. It is important to note that it has been examined on recent editions of most typical ie (i.e.,Internet Traveler, Netscape Gps, FireFox, and Opera). The incorporation of the Signing Framework in the Online Test system has been rather easy. For the incorporation of the server-side factor, the Coffee Archive (JAR) file containing the framework sessions has been brought in as a collection in it. Furthermore, an alteration to the body's implementation descriptor has been necessary. For the incorporation of the client-side factor, it has been necessary to

consider the structure of the Online Test system user interface. The analyze is released in a child internet browser screen of it website. This screen shows a minutter to notify the student of enough time left to complete the analyze and contains the manages to circulation (forward and in reverse buttons) between the concerns and the option to publish the analyze. The system and the kind containing the options are packed in an iframe screen placed in the center of the site. The JavaScript segments for taking the activities have been involved in both the exterior screen and the inner iframe, while the segments for interacting with the hosting server have only been involved in the main web page. To be able to recognize the resource factor of the activities, the HTML value of the Online Test user interface has been a little bit customized by including HTML factor identifiers to several components (form entertaining components such as brands and stations buttons).

5.1 LIST OF CLASSES AND INTERFACES USED

1. AddQuestionAction

2. FinishExamAction
3. GetAllQuestionsAction
4. GetAllstudentsAction
5. GetGraph
6. LoadQuestionAction
7. MonitorTestAction
8. QuesmanagementAction
9. StudentLoginAction
10. StudentLogoutAction
11. StudentRegistrationAction
12. HibernateSessionFactory
13. StudentDbDAO

Chapter 6

TESTING

5.2. METHODS USED

1. createDataset

XYDataset

```
createDataset(Vector<Vector<String>>
map,Vector<Double> fvec)
```

2. createChart

```
String createChart(final XYDataset
dataset, Sequence uname)
```

A primary objective of analyzing is to recognize application breakdowns so that problems may be discovered and repaired. This is a non-trivial search. Testing cannot recognize that a product features successfully under all circumstances but can only recognize that it does not function successfully under particular circumstances. The opportunity of current application analyzing contains evaluation of value as well as performance of that value in various circumstances as well as analyzing the quality factors of code: does it do what it is expected to do and do what it needs to do. There are several different levels of analyzing that

are done throughout the application development process. These are defined in the desk below:

TEST TYPE	DESCRIPTION	WHITE/BLACK BOX
Unit	Tests a small unit of a software application.	White Box
Integration	Tests the interaction of small modules of a software application.	White or Black Box
Acceptance	Testing conducted by a user to verify that the system meets the acceptance criteria.	Black Box
Regression	Tests new functionality in a program. Regression testing is done by running all of the previous unit tests written for a program, if they all pass, then the new functionality is added to the code base.	White Box
Functional and System	Verifies that the entire software system satisfies the requirements	Black Box

6.2. TEST CASES

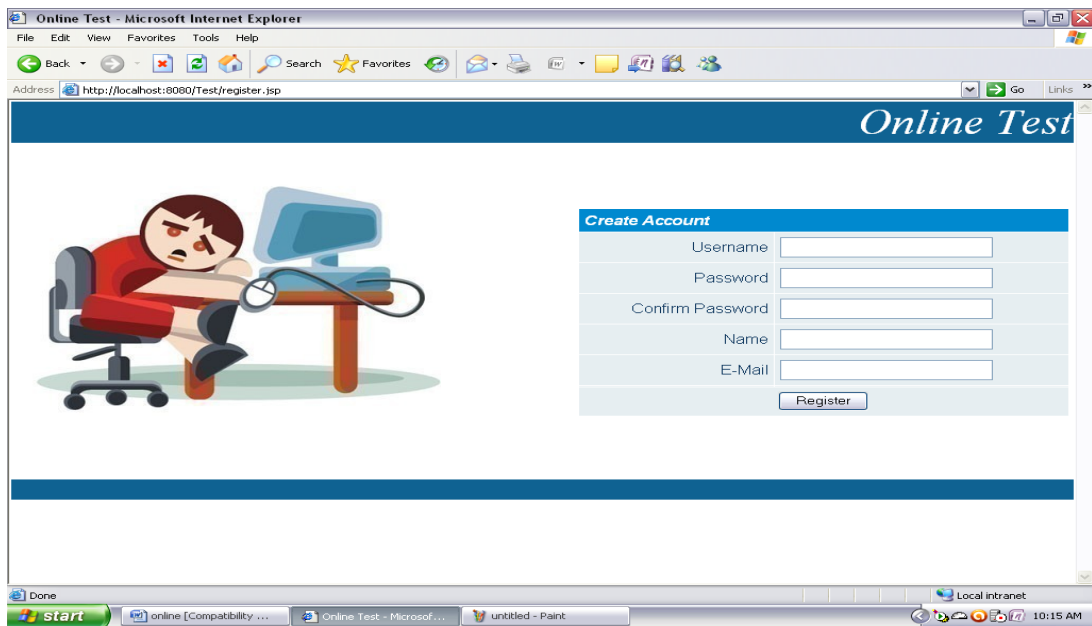
In common the test situation is a set of test data and test applications and their predicted results. A test situation in system technological innovation normally includes a exclusive identifier, need sources from a design requirements, preconditions,

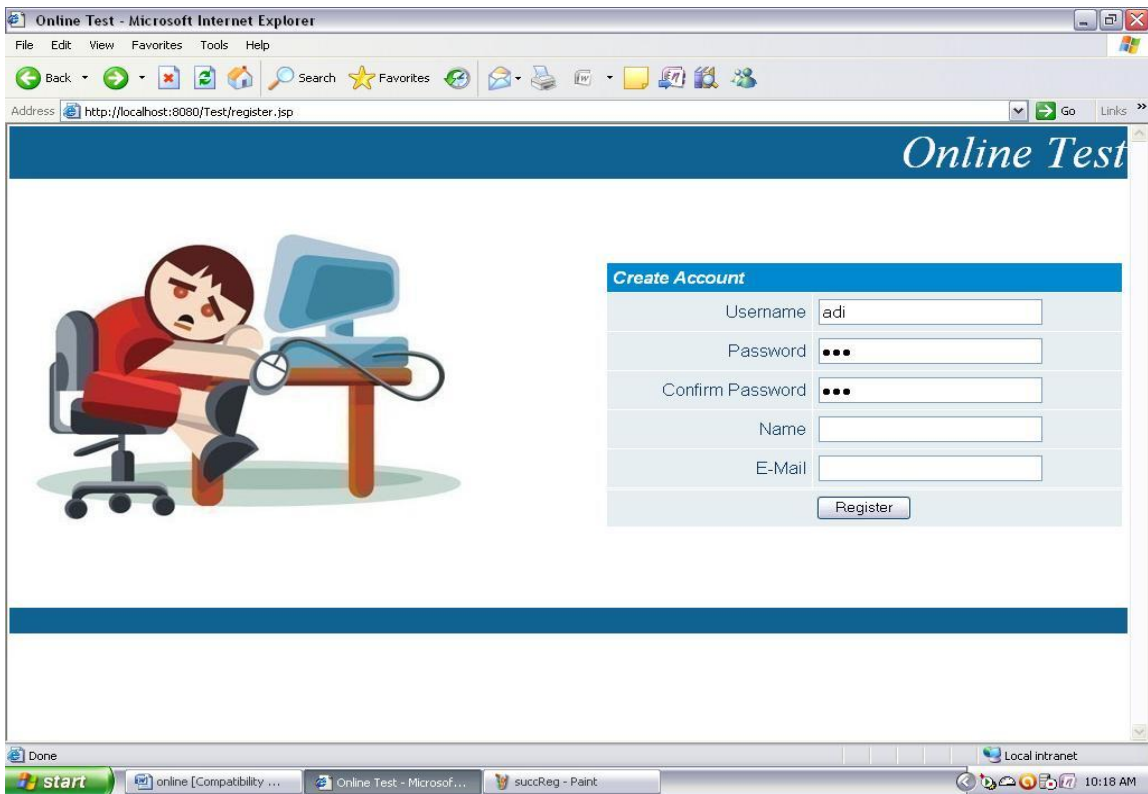
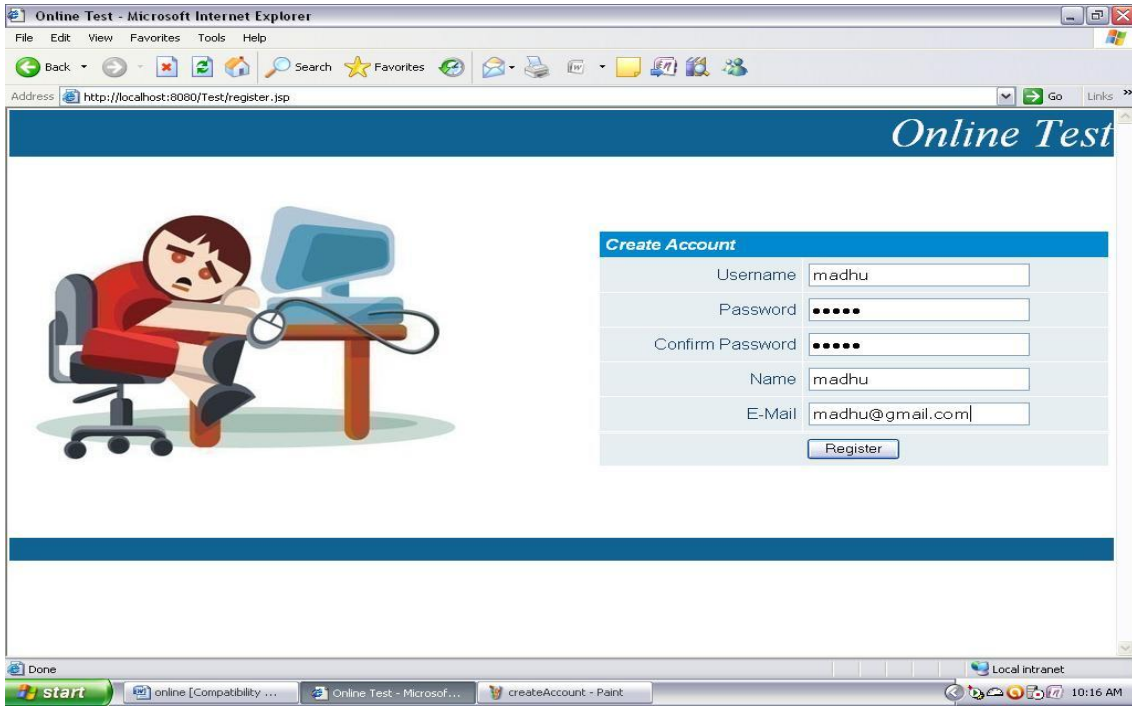
activities, a sequence of actions (also known as actions) to follow, feedback, outcome and it validates one or more system specifications and produces a complete or fall short.

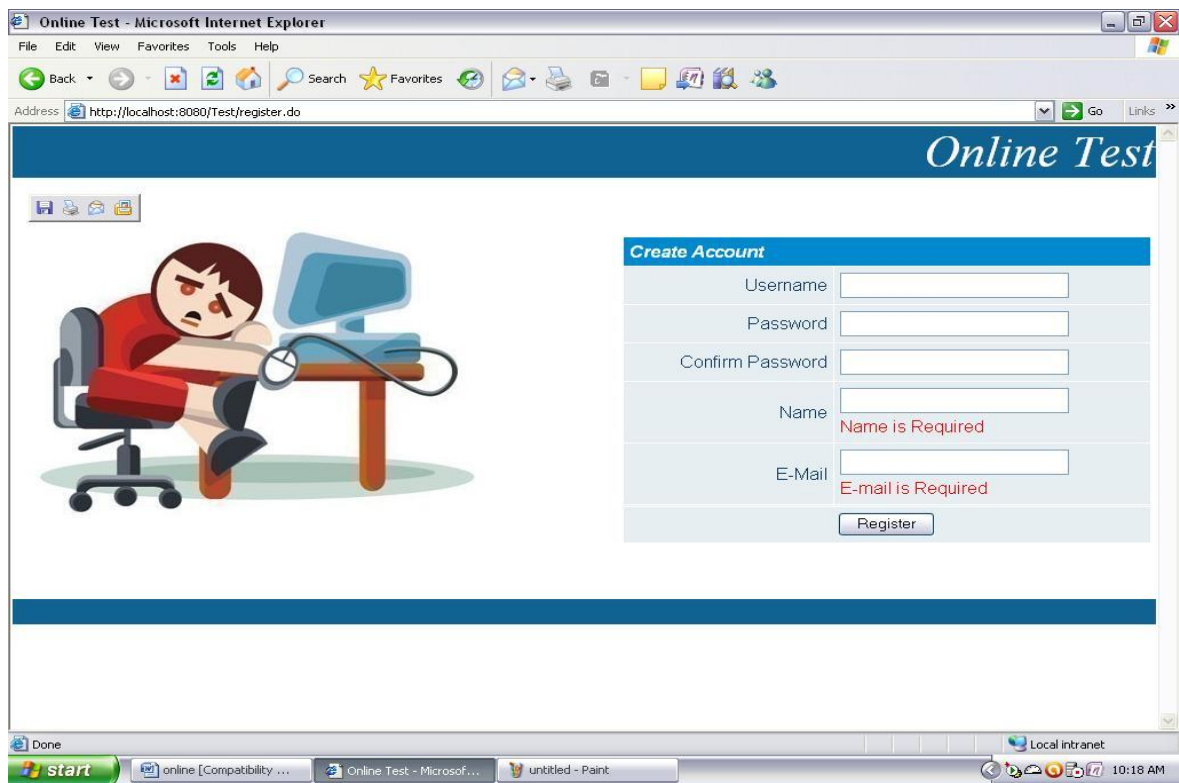
Test Case 1

Test Objectives: User Registration

ITEM NO	TEST CONDITION	INPUT SPECIFICATION	OUTPUT SPECIFICATION	PASS/FAIL
1	Create User if all fields are valid	1. Enter all details 2. Missing any fields	1. Create User 2. System Displays Error Message	PASS PASS





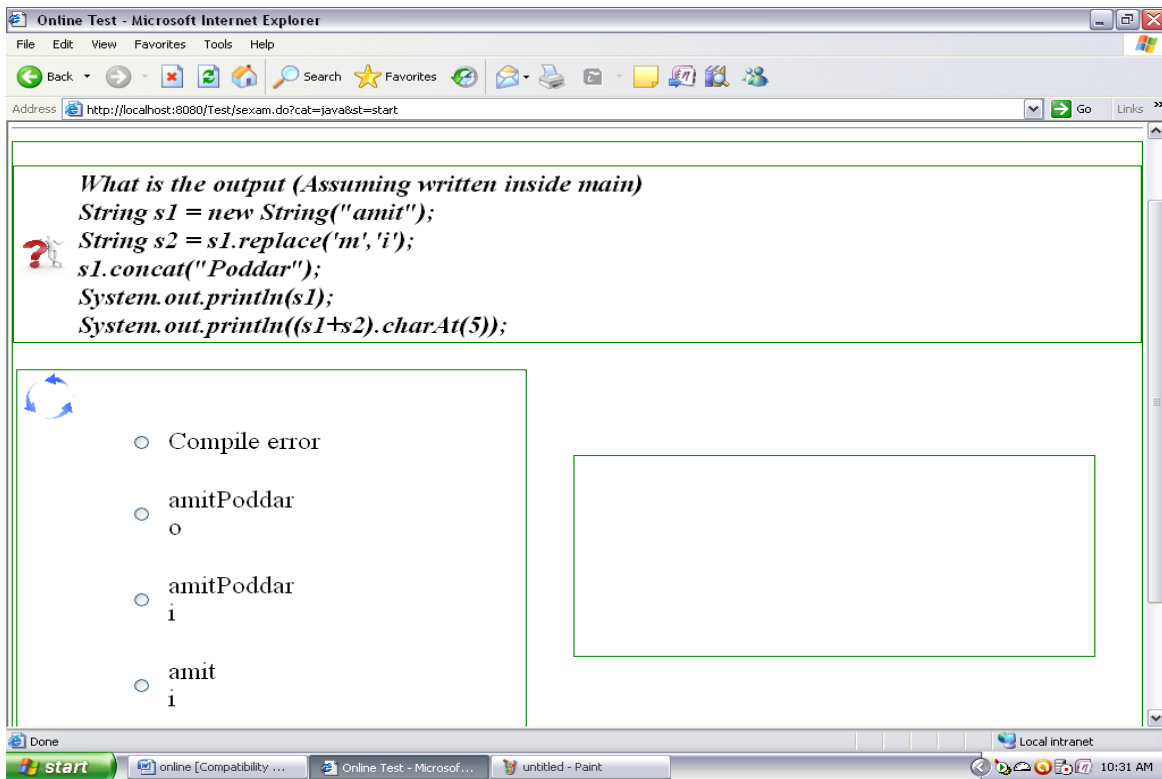
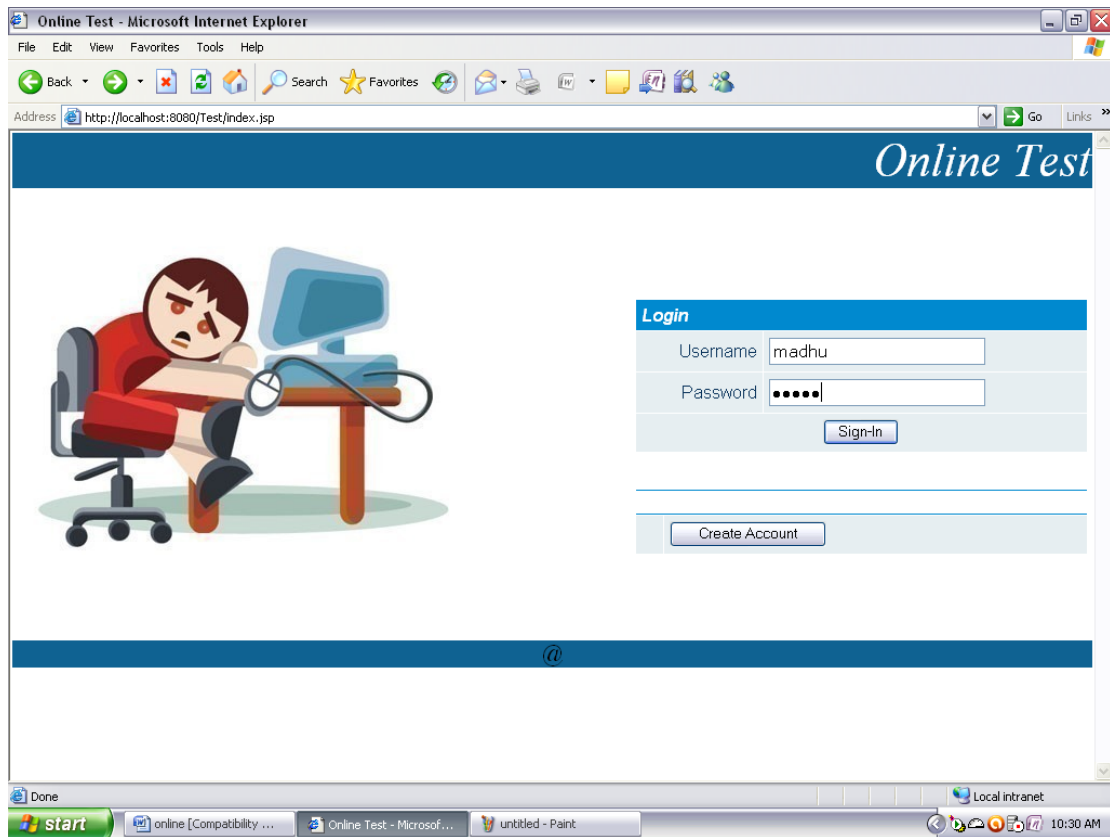


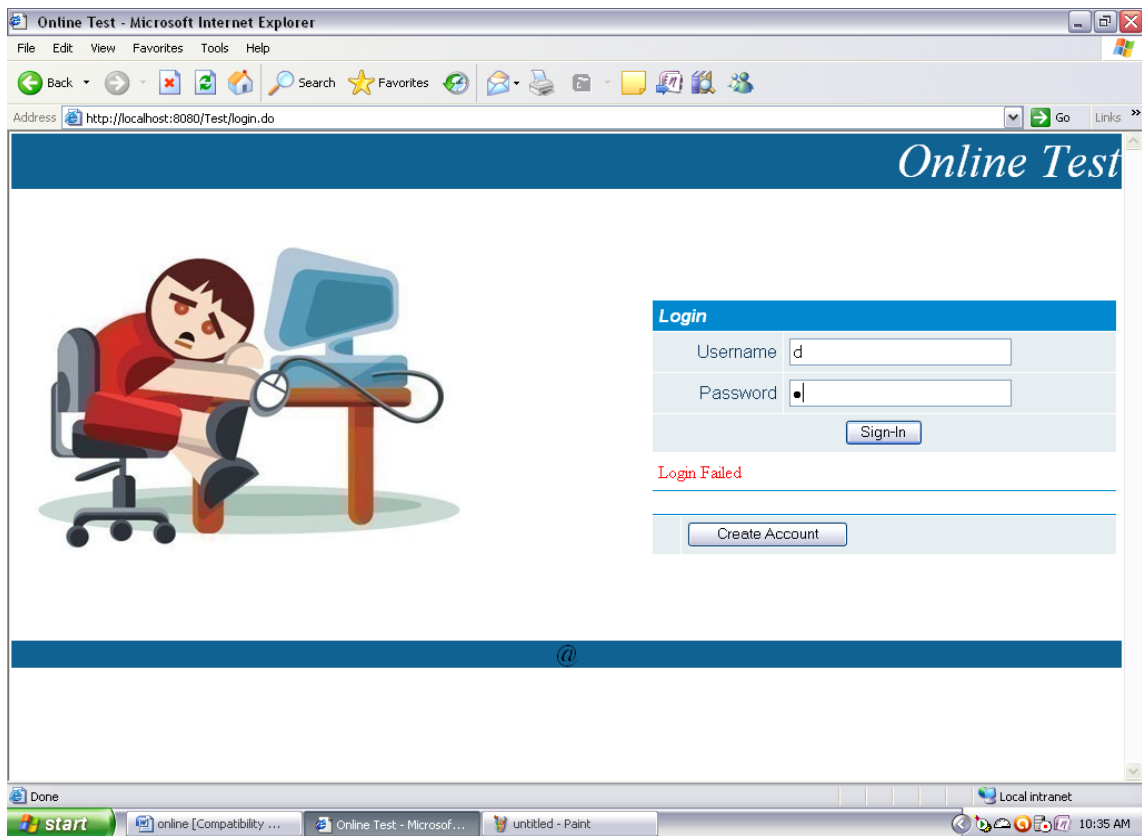
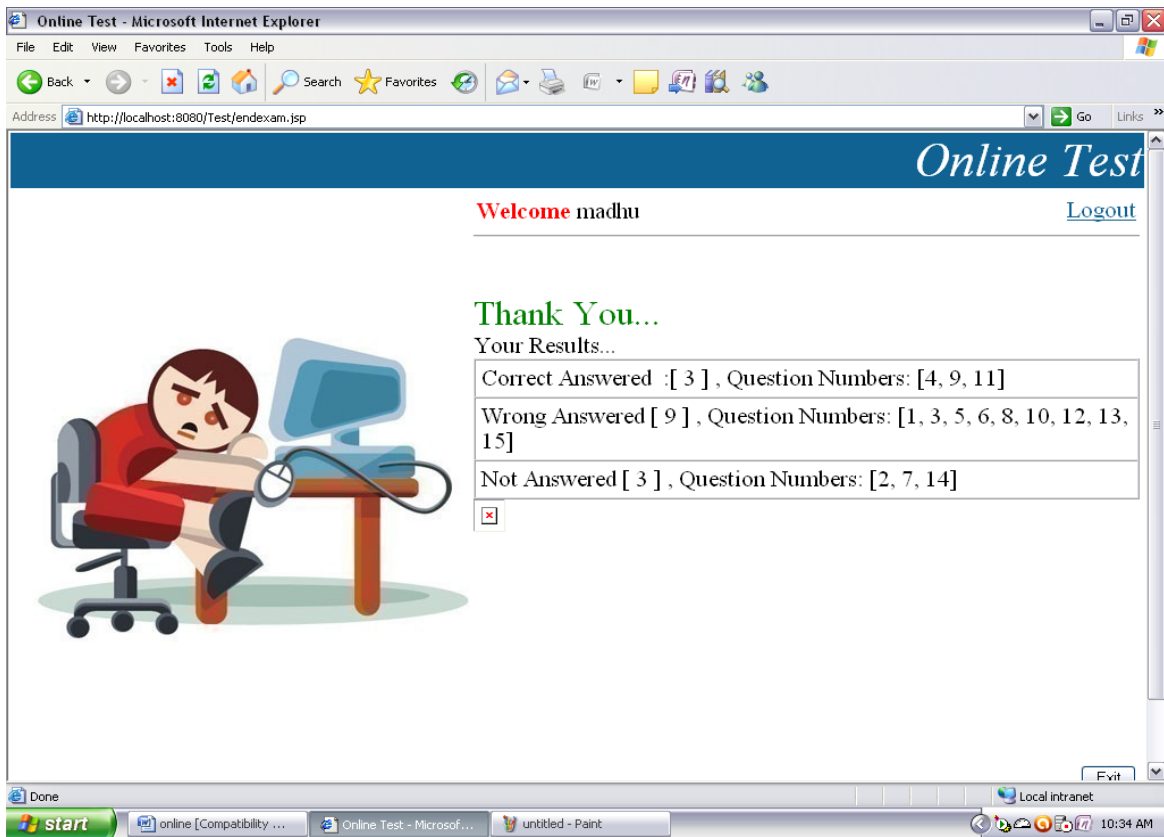
Conclusion: Here we test user signing up. If all areas are legitimate then outcome is complete otherwise shows mistake concept here also outcome is complete.

Test Case 2

Test Objectives: User Login and taking test

ITEM NO	TEST CONDITION	INPUT SPECIFICATION	OUTPUT SPECIFICATION	PASS/ FAIL
2	User login and taking test	1. valid login details 2.invalid login details	1.Test page 2.System Displays Error Message	PASS PASS



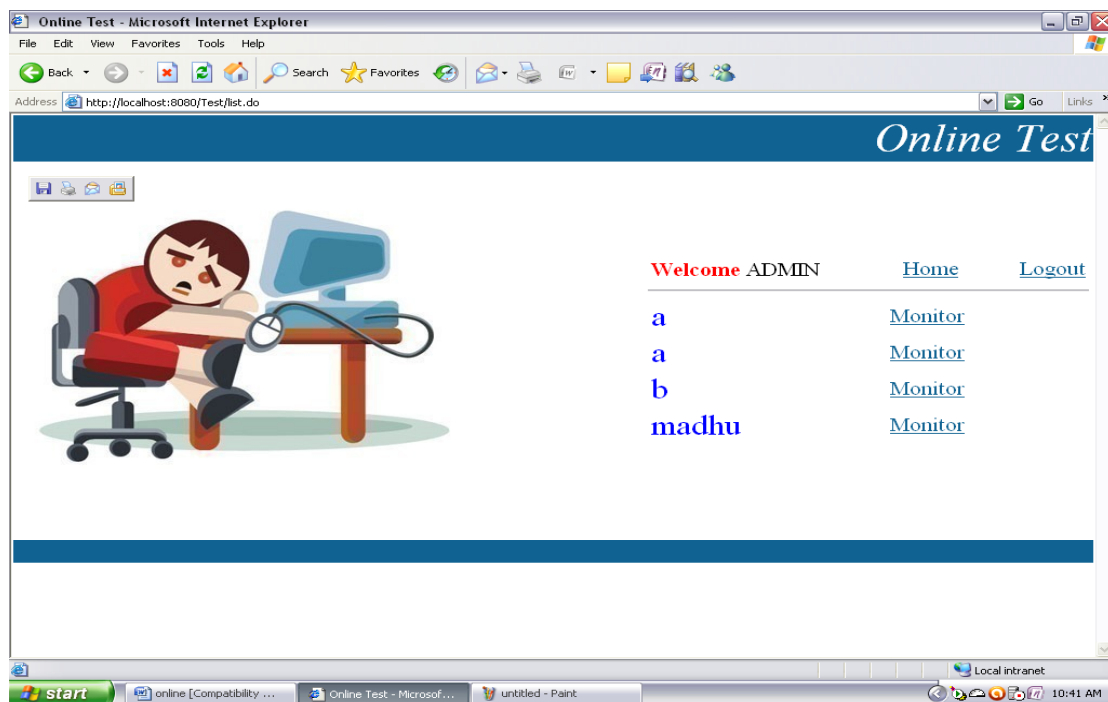


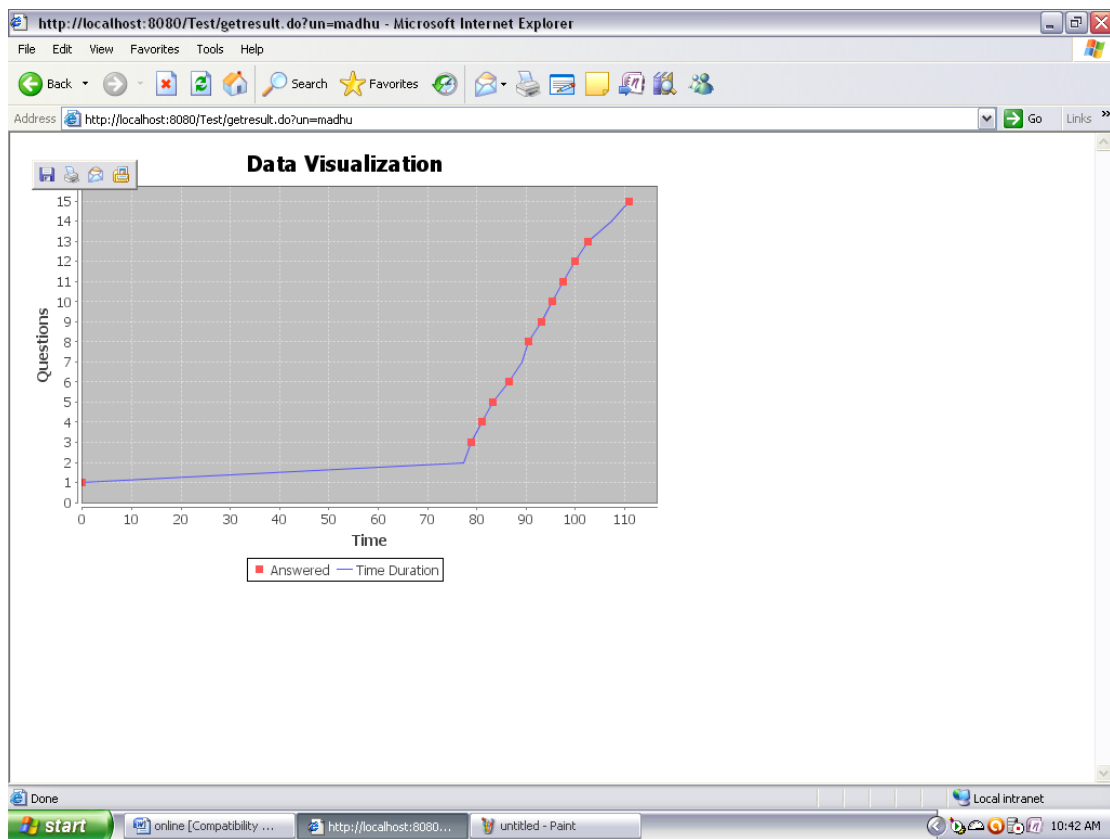
Conclusion: Here we analyze if individual is legitimate, he can take analyze and perspective his outcome. Otherwise System shows Mistake Concept.

Test Case 3

Test Objectives: Tutor Analysis

ITEM NO	TEST CONDITION	INPUT SPECIFICATION	OUTPUT SPECIFICATION	PASS/FAIL
3	Graph on user's test	Dataset collected by system while monitoring the test	Graph that can be used for analysis	PASS





Conclusion: Here we test whether system displays graph depicting learner's behavior.

Chapter7

CONCLUSION AND FUTURE WORK

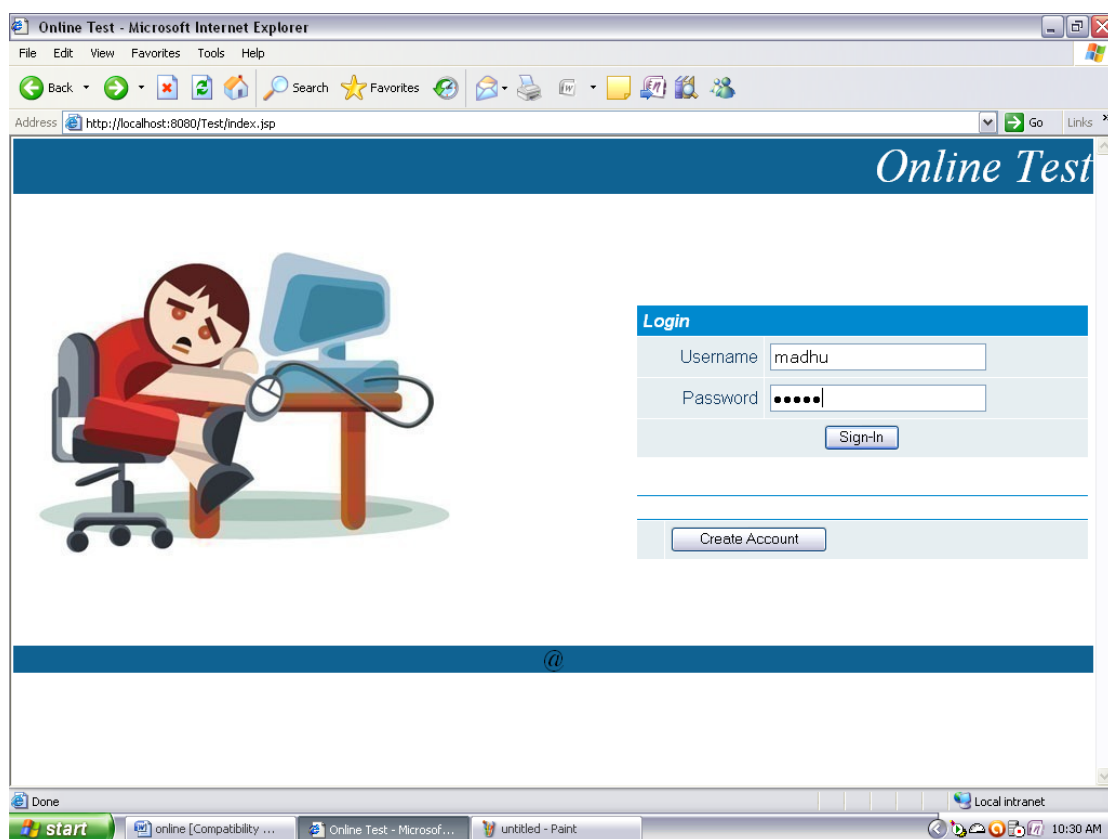
We have provided a strategy and a program to let instructors observe learners' techniques during on the internet assessments. The strategy uses information creation to sketch the information characterizing the learner's analyze strategy, to be able to induce the tutor's attention and to let him/her find out previously mysterious behavior styles of

the students and conceptual connections among analyze items. In this way, the teacher is provided with a highly effective tool that allows him/her review the whole evaluation process and evaluates possible upgrades. We have substantially used the applied program experimentally to evaluate on the internet analyze techniques in the programs of our staff, to be able to evaluate the whole strategy. This allows us find out several appropriate styles regarding the analyze quality, you will of used techniques, and the impact on the final score. Later on, we would like to develop new visible representations and perform further assessments, possibly

along with traditional information exploration methods.

Moreover, since the strategy gives itself to the program to other program areas such as e-commerce, in the long run,

we would like to evaluate its use in these situations. Finally, we wish to discover more greatly the problem of being disloyal recognition, which we just cure in wide terms here, since we believe that an strategy based on signing and creation can be ensuring and effective to this aim



Online Test - Microsoft Internet Explorer

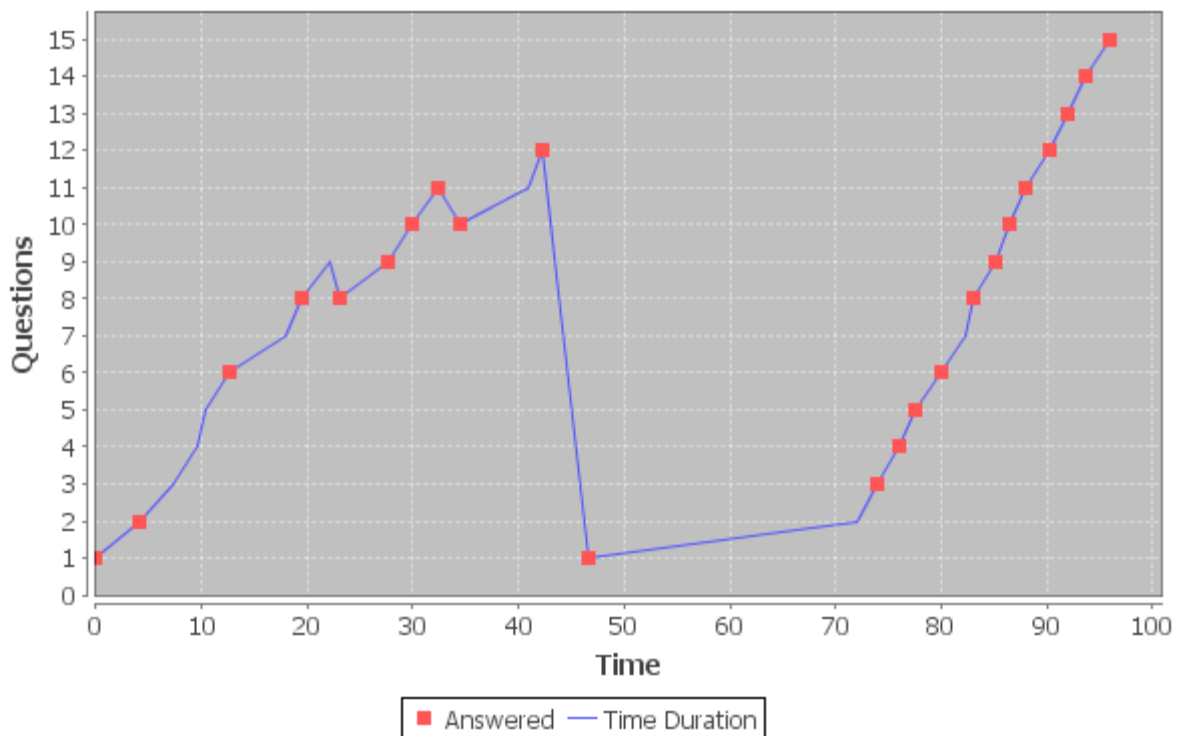
Address: <http://localhost:8080/Test/seexam.do?cat=java&st=start>

What is the output (Assuming written inside main)

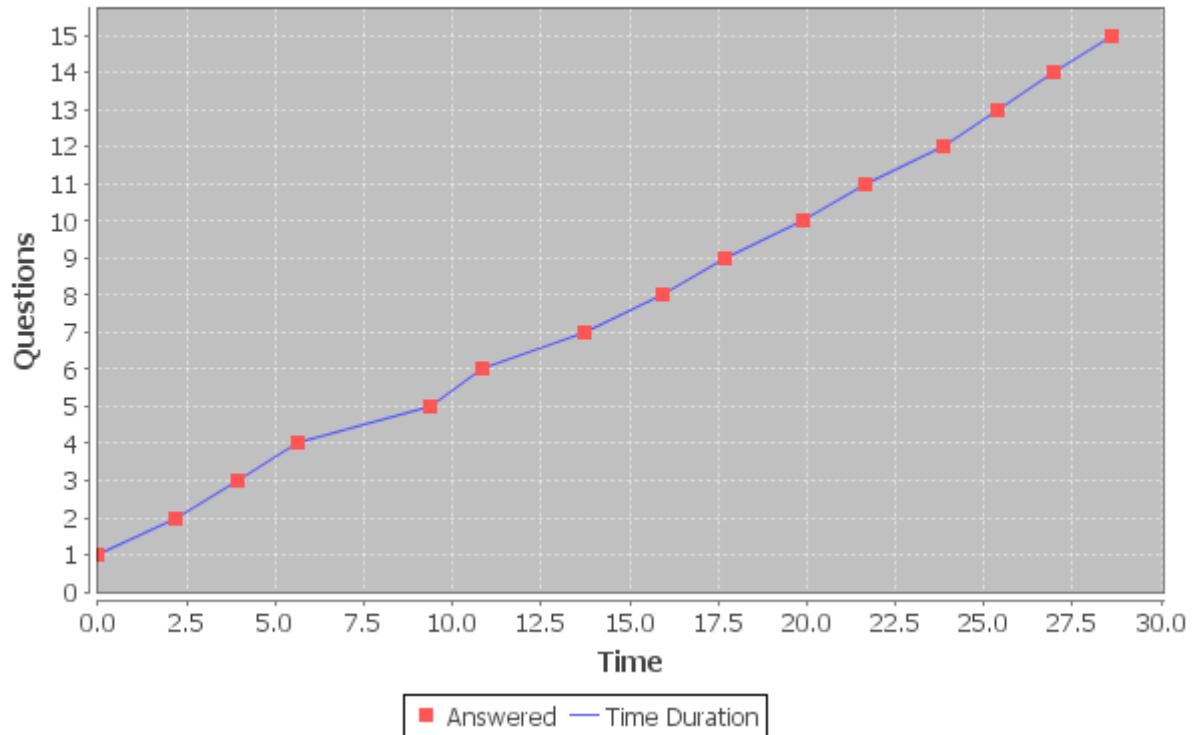
```
String s1 = new String("amit");
String s2 = s1.replace('m', 'i');
s1.concat("Poddar");
System.out.println(s1);
System.out.println((s1+s2).charAt(5));
```

Compile error
 amitPoddar
 amitPoddar
 i
 amit
 i

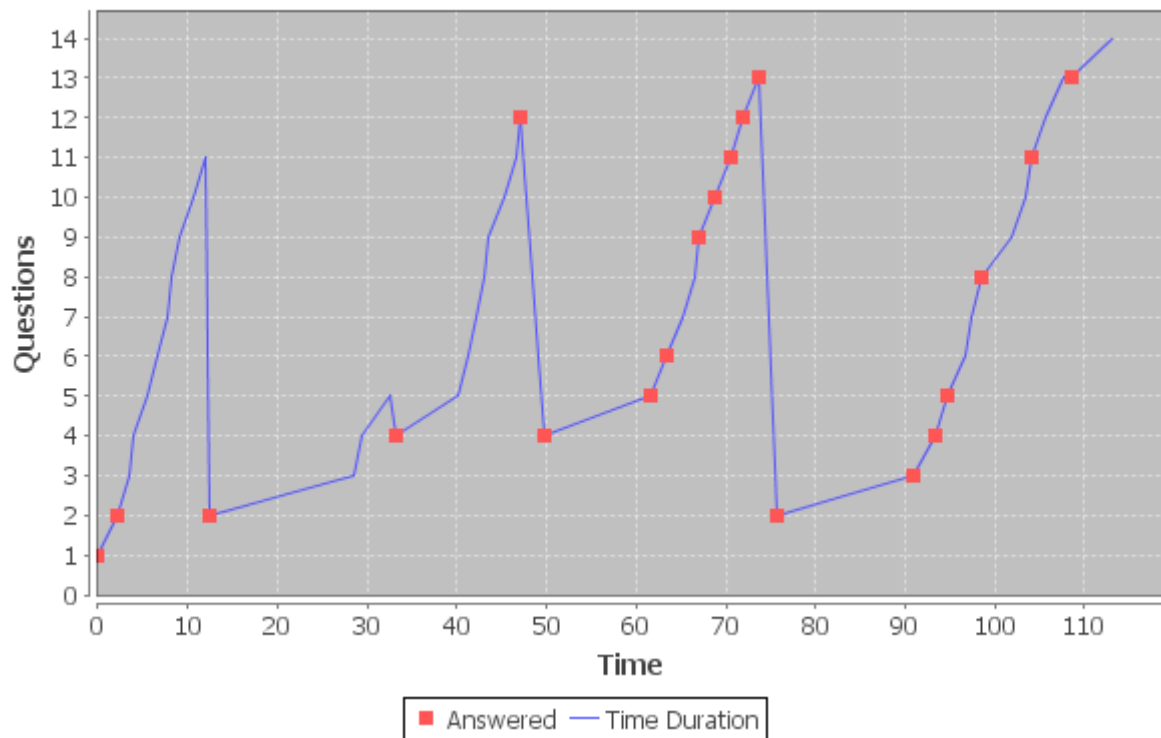
Data Visualization



Data Visualization



Data Visualization



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