Crack Analytics Functionality - Web

# Technology

The technology used for developing Crack Analytics web application is as shown in the below table

|  |  |
| --- | --- |
|  | Technology Used |
| Database | MongoDB |
| Frontend | AngularJS, Bootstrap |
| Backend | NodeJS |
| Middleware | ExpressJS, Mongoose |

# List of Modules

* Social Sign up and User Registration.
* Question Bank.
* Assessments.
* Guesstimates
* Videos (Tentative).
* Mock interview.
* Resume collection.
* Article.
* Forums.
* User profile.

# Social Sign up and User Registration

## Front End (User Level)

* Accept social sign up for the system.
* Mandatory sign up is required for modules Assessments, Guesstimates, Forums.
* Sign up is optional for Articles.
* Checking for user existence in the system.
* If the user doesn’t want to do a sign up using social logins. He / she is provided with Crack Analytics user registration form.
* The user can create an account specifically for the system.

## Administrator Level

* Should be able to view and delete the user in the system.

### Table Structure – Social Sign on

|  |  |  |
| --- | --- | --- |
| Field Name | Field Type | Description |
| User Name | Unique | User name preferred by the user. |
| Login Id | Unique | Social sign up id |
| Password |  | User provided password |

### Table Structure – Crack Analytics User Sign on

|  |  |
| --- | --- |
| Field Name | Description |
| Name | Name of the user. |
| User Name | User Name preferred by the user. |
| Email | If the user wants to provide any email contact. |
| Password | User provided password |
| Gender | Male or female |
| Address | User address. |

# Question Bank

## Front End (User Level)

* Six to seven topic.
* Based on user topic selection question and answer will be populated in the view.
* A side navigation will be provided for user to select different subject topics.

## Administrator Level

* Administration user should have provisions for adding, deleting, updating and viewing collections / records from the database.
* Provision for adding both text and pictures (diagrams, images) in question. The answer or question may contain pictures for explanatory purpose.

### Table Structure- Question Bank

|  |  |
| --- | --- |
| Field Name | Description |
| Question Topic | The type of questions e.g. - R Question, SAS Questions... |
| Question Sub Topics | The sub topics for the above Question Topic field if any. |
| Question Text | The actual Question. |
| Answer Text | The actual answer. |
| Picture / Diagram | The link or location of the image file used in the question. |

# Assessment

## Front End (User Level)

* User should Sign up to be eligible for taking up assessment.
* List of assessment topics will be provided for the user to select.
  + R
  + SAS
  + Machine Learning
  + SQL
  + Tableau
* General Information on grading should be displayed to user as a popup or a modal.
* Once the user selects the assessment topic, the list of topic should be disabled.
* The user will be provided with a set of random questions from the database.
* The question will be randomized based on Assessment Table Question Category field and number of question available in the database.
* Provision for browsing around with questions provided in the assessment.
* User must hit submit to complete the test.
* Score should be provided to user as simple modal or popup.
* The scores should also be stored under his/her user profile in the database.
* There will be a total 15 questions asked in each test.
* Grading logic
  + Each question contains
    - A question and answer and also three dummy answers.
    - The user will be provided with navigation buttons to freely to browse through the questions.
    - Each correct answer fetches 1 mark.
  + Percentage will be calculated as Percentage = (Number of Correct Answers / Total Number of Question) x 100.
  + Grading Message should contain below given format.
    - 100% - 90% – Outstanding.
    - 80% - 70% – Great.
    - 60% - 50% – Good.
    - 50% – 40% – Okay.
    - 40% < - Need to Study more.
* The test report should contain following
  + Total Number questions.
  + Attended questions.
  + Correct Answers.
  + Wrong Answers.
  + Score.
* Shuffling or Randomizations operation done before populating questions in the view.
  + Questions, answer and dummy choices in database.

## Administrator Level

* The administrator should have access to create, update, delete and read questions
* The input fields should be
  + Question Topic / category.
  + Question Difficulty Level.
  + Question Text.
  + Answer Text.
  + Dummy Choice1.
  + Dummy Choice2.
  + Dummy Choice3.
* View and delete stored test results.

### Table Structure – Assessment

|  |  |
| --- | --- |
| Field Name | Description |
| Question Topic | The type of questions e.g. - R Question, SAS Questions... |
| Question Difficulty Level | The level of difficulty classified as – Basic, Intermediate and Expert. |
| Question Text | Actual Question. |
| Answer Text | Actual Answer. |
| Dummy Choice1 | Dummy answer to populate for assessment question choices. |
| Dummy Choice2 | Dummy answer to populate for assessment question choices. |
| Dummy Choice3 | Dummy answer to populate for assessment question choices. |

### Table Structure - Scores

|  |  |
| --- | --- |
| Field Name | Description |
| User Name | User name preferred by the user. |
| Type of Test | Either Assessment or Guesstimates. |
| Test Number | The user can attend n number of test in both Assessment and Guesstimates. |
| Score / Marks Acquired | The user score for that particular test. |

# Guesstimates

## Front End (User Level)

* User should Sign up to be eligible for taking up Guesstimates (similar to assessment Module).This is also used for testing the user.
* This will be a timed assessment for 3 minutes.
  + Basic Arithmetic Operations or Analytical questions
    - The user will select any one of the options from below
      * Addition.
      * Subtraction.
      * Multiplication.
      * Division.
      * Analytics.
      * 10 Questions are provided.
      * If the user selects any of the above arithmetic operation, then user will be provided with 2 n digit numbers for which he/she has to do the appropriate operation and enter the result.
      * Example -
        + Question 1: 1000 + 1000000000 = \_\_\_\_\_\_\_\_\_\_\_\_.
        + User inputs 100001000.
        + Question 2: 222 + 55555555555 = \_\_\_\_\_\_\_\_\_\_\_\_\_.
        + User inputs 5555555777.
        + Question 3: 734509823740598234752 + 0 = \_\_\_\_\_\_\_\_\_\_\_.
        + User Inputs 734509823740598234752.
        + Question 4: 39470947093475093475 + 1 = \_\_\_\_\_\_\_\_\_\_\_.
        + User Inputs 39470947093475093476.
      * If user selects Analytics, then a series of analytics questions will be asked.
      * Note – For Analytical Question, there will be no evaluation. At the end of the test the user will be provided with the answer or explanation for the answer for all the question he or she has attended. There is no marking or evaluation for the category of “Analytical Questions”.
      * Grading calculation for Arithmetic operation is as follows
        + Variance Percentage

Result = Correct Answer – User Answer

Variance Percentage = Result / Actual Answer \* 100

* + - * + Accepted Estimate Range

Range 1 = Correct Answer + 1000.

Range 2 = Correct Answer – 1000.

If User Answer<= Range 1 and User Answer >= Range 2. Set ACR = true if the condition satisfies else set ACR false.

The user answer is within Accepted Estimate Range if ACR is true.

* + - * The correct answer should be highlighted in green and wrong answers should be highlighted in red.
* The test result / report should contain
  + Question – The question asked.
  + User Estimate – The user’s answer.
  + Correct Answer.
  + Acceptable Estimate Range
  + Variance %.
* There should be a summary of test results showing following details.
  + Name - The name of the user.
  + Test number – The number test taken.
  + Test Type – The type of test namely Addition, Subtraction, Multiplication and Division.
  + Score – The score the user acquired in the test.

## Administrator Level

* The administrator should have provisions to Create, Read, Update and Delete collections / records into Analytics Question.

### Table Structure – Analytics Question

|  |  |
| --- | --- |
| Field Name | Description |
| Analytics Question | Analytical Question to be used in the Guesstimates. |
| Analytics Answer | The answer for the question. |

### Table Structure – Guesstimates

|  |  |
| --- | --- |
| Field Name | Description |
| Test Type | Addition, Subtraction, Multiplication or division. |
| User name | Name of the user who has taken the test. |
| Score | The score acquired by the user. |

# Videos

## Front End (User Level)

* The user will be provided with videos related to analytics. They will be categorized into different sub topics as R, SAS, and Machine Learning.
* In this module most of the videos are free. Unless the user wants to view the videos in the premium section.
* Here the sign on will become mandatory. The user must sign in and pay for the viewing the videos in the premium section.

## Administrator Level

* The administrator should have provisions to Create, Read, Update and Delete collections / records into Analytics Question.

### Table Structure – Analytics Videos

|  |  |
| --- | --- |
| Field Name | Description |
| Video Category / Topic | Different category in which the videos will be grouped. E.g. R, SAS.. |
| Video Sub-Category / Topic | Sub category if any. |
| Video url | The url for the videos, as most of the videos will be acquired from YouTube. |
| Video File | If any videos created from scratch that will be used in videos module. |

# Mock Interview

## Front End (User Level)

* The main purpose of mock interview is to familiarize any user of the site on interviews.
* Interested user will input the necessary details, based on the available time slot. An interview session will be arranged.

## Administrator Level

* An alert is sent via email to the site admin. If any user wishes to arrange a mock interview.
* The administrator will check for the available interviewer and suitable or available time slot for the interviewer and mail the details of the interview to both the user and the interviewer.

### Table Structure – Mock Interview

|  |  |
| --- | --- |
| Field Name | Description |
| Name | Name of the user. |
| Email | Email id of the user. |
| Mode of Interview skype/phone | Choice to select either skype or phone |
| Phone Number | If the user selects mode of interview as phone. |
| Skype id | If the user selects mode of interview as skype. |
| Preferred Date and time | Choice provided to the user to select from fixed time slots and days. |

# Resume Collection

## Front End (User Level)

* The purpose of resume collections is to direct the site user to possible job openings.
* The user must sign in to submit the resume.

## Administrator Level

* The administrator needs to have a mail alert specifying that a user has submitted a resume.
* The administrator should have user information and resume stored. So the administrator can forward the resume to a prospective employer.

### Table Structure – Resume collection

|  |  |
| --- | --- |
| Field Name | Description |
| User Details | From user table, as the user will sign in to submit a resume. |
| File Location | File location. |
| File name | Name of the resume file uploaded. |

# Articles

## Front End (User Level)

* The site user will be provided with list of articles categorized under different topics.
* The user can read the articles and also provide comments on the articles.

## Administrator Level

* The administrator must be able to Create, Read, Update and Delete articles.
* Every comment posted by the user should be authenticated by the administrator before it can be populated in the front end view.

### Table Structure – Articles

|  |  |
| --- | --- |
| Field Name | Description |
| Article category / title | The category under which the articles are classified. E.g. R, SaaS, Machine Learning,.. |
| Article Sub-Category | Articles could also be sub-categorized, this field stores the sub-categories of the articles. |
| Article Content | The content of the article. |
| Image File | The location of the image file to be used in the articles. |

### Table Structure

|  |  |
| --- | --- |
| Field Name | Description |
| Name | Name of the user who provides a comment |
| Comment | The comment provided by the user. |
| Authenticate | A flag value to be checked by the user. If checked the comment can be allowed for public view. |

# Forums

## Front End (User Level)

* The purpose of forums is to provide the user with one to many user question and answer session.
* The user must sign in, to ask questions and also to answer the questions. Every question or answer must be authenticated by the administrator.
* The user can ask any questions related to analytics, which could be answered by any registered user.

## Administrator Level

* The administrator must have access to view and delete any irrelevant question or answer.
* Every question and answer must be authenticated by the administrator before being displayed for public view.
* An alert should be sent whenever a question or answer is posted in the site.

### Table Structure – Forums

|  |  |
| --- | --- |
| Field Name | Description |
| Forum Question | Question asked by the user. |
| Forum Answer | Answer provided by the user. |
| Question User name | The name of the user who has asked the question. |
| Answer User name | The name of the user who has answered the question. |
| Authenticate flag | The flag value to set if the question or answer is publicly viewable. |

# User Profile

## Front End (User Level)

* This will be a dashboard provided to any registered user of the site.
* Sign in is mandatory for this module.
* The user will be able to view the following
  + Result of any online test (Assessment) he / she has taken.
  + Result of any Guesstimate he / she has taken.
  + Resume, if they have uploaded any or feature to modify the uploaded resume.

## Administrator Level

* Provision for resetting password for user.
* Provision for viewing and deleting the user records.

## Table Structure – User

|  |  |
| --- | --- |
| Field Name | Description |
| Name | Name of the user. |
| User Name | User Name preferred by the user. |
| Assessment Test Details | Test type, Test Number, score. |
| Guesstimate | Test type, Test number, score. |
| Resume | File location. |