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.
* Question Bank.
* Assessments.
* Guesstimates
* Videos (Tentative).
* Mock interview.
* Resume collection.
* Article.
* Forums.
* User profile.

# Social Sign up

## 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.

## Administrator Level

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

### Table Structure – User

|  |  |  |
| --- | --- | --- |
| 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 |

# 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. |

# 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. |

# Videos

## Front End

* 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

* 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.