**2018 BDPA South Regional**

**HSCC Programming Problem: Loan Application System**

The BDPA High School Computer Competition helps students set and obtain goals. This competition allows students to show off their skills, helps expose them to, and prepare them for careers in IT. Throughout a student’s life the ability to work with and understand how the world’s economic system works, forms a strong basis for our educational and life systems. The ability to gain access to money helps keep the world’s economic structure intact.

One day each of you will be a major participant in the world’s economy. You will own businesses, homes, motor vehicles and your education. With that in mind this year’s programming problem is the **BDPA Money Capital Corporation**. Your team will create an application that allows a customer to apply for loans for items mentioned above.

**Details**

Loan Processing is automated -therefore the system will automatically **Approve**, **Reject** or **Fund** the loan based on conditions described in the **Loan Qualification Rules** section.

The potential customer will:

* **Login to the App**
  + The app requires users to login with **email** and **password**.
  + A new customer must click the **new customer link** causing a new customer form to appear. See the customer table for the items that need to be supplied by the Customer.
  + Upon completion of the **new customer form** customer will be required to **login** or start the loan process.
  + Customer must be allowed to change their password at any time
  + Customer must be allowed to use the "**Forgot Password?**" link to reset their password.
* Fill out an online application
* Choose the type of loan they want from those available on the **loan\_types** table:
  + Automobile
  + Home
  + Boat
  + Motorcycle
  + Student loan
* Customer must choose a **loan length** in months. See the **loan\_interest\_terms** table for available terms
* Once a loan type and length is selected, use the corresponding item in the loan\_interest\_terms table to retrieve the assigned interest rate for that type of loan.
* **Interest rate** to be used will be dictated by the loan terms specified in the loan\_interest\_terms table
* Customer **must provide at least one** Reference (see the **customer\_reference** table for required information)
* Loan information must be saved in the **loan\_application** table
* The customer may choose to
  + Submit the loan application, and/or
  + Customize the application with loan **add-ons**
* **Customize the loan application**

The customer will be able to customize the loan application by choosing from the optional products such as

* + Extended Warranty (EW)
  + Payoff Insurance (PI)
  + Monthly Payment Insurance (MI)
* Customer loan application **summary page** will
  + List details of the loan
  + **Always display appropriate loan application status** on the application dashboard
  + Allow Customer to **Submit** the Loan Application
  + Allow Customer to **Withdraw** the Loan Application
* If Customer **Submits** the Loan Application update the loan\_application\_status\_cd to "**S**" (Submitted)
* If Customer **Withdraws** the Loan Application update the loan\_application\_status\_cd to "**W**" (Withdrawn);
* If the loan application is **Approved** the system should:
  + Allow Customer to **Accept the Loan** by typing in their password (in lieu of a hand written signature).
* If Customer **accepts** the loan:
  + Update loan\_application\_status\_cd to **A** (Approved/Funded - Active) in the loan\_application table
  + **Enable the option to Print the Application**

**Customer should be able to**:

* **Display Loan Detail**
* Loan app will display all details entered by Customer
  + Customer Email ID
  + Personal contact information
  + Loan Application Number
  + Loan Type
  + Optional products
  + Appropriate graphic images for type of loan
* For each optional product, display:
  + Name
  + Description
* **Enable the option to Print the Application**

**Please note the following:**

* This app must be **Mobile-Ready -** Meaning that the particulars to allow it to run correctly on various mobile devices should be implemented
* Test for responsive design by emulating different screen sizes and resolutions for Laptop, MacBook, iPhone, Android phones, and Tablets
* Password Security must be programmed into the application.
  + Complex passwords will be used and **must meet the following criteria**:
    - 8-character minimum
    - at least 1 upper case letter
    - at least 1 number
    - at least 1 special character
  + If these requirements are not met, the creation of the login cannot be completed
  + Password saved in database **MUST BE ENCRYPTED**
  + Account must be locked after 3 invalid login attempts
  + **After the first invalid login** display how many logins are left before the account is locked
  + Administrators will have the ability to unlock a locked account
  + The password rules and instructions must be displayed on the new account and password reset screens
* **Loan Qualification Rules**
  + Car loan amounts must be less than or equal to 50% of gross annual income
  + Home loan monthly payments must be less than or equal to 2.7% of gross annual income
  + Motorcycle loan monthly payments must be less than or equal to 1.5% of gross annual income
  + Boat loan monthly payments must be less than or equal to 1.5% of gross annual income
  + Student loan amounts must be less than or equal to 15% of gross annual income
  + Monthly Payment = (Principle/Term of Loan in Months)
* The total monthly payment must be shown on the loan application confirmation
* You should always display the description or name for an item, rather than the code value
* The app must provide flexible navigation and ease of use.
* Messages, prompts, navigation tips, proper controls, and display of code values will all be important to consider as part of your design.
* Your team will need to **decide what pages are needed**, and,
* The overall app should have a consistent look and feel to the customer.