accenture

ACCENTURE INNOVATION CHALLENGE

Your innovation can make a difference

Project Title

GRAZER

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INNOVATION

Agriculture is a significant part of our country, it contributes about 17-18 % of the total GDP of our country employing more than 50% of the total work force in India. (according to financial express)

Agriculture is one of the biggest industries in India. This industry is running without any assistance and guidance, leading the farmers to face the difficult circumstances. Since the capital of the farmers are locked up in his lands and stocks he is obliged to borrow money for stimulating the tempo of agriculture production. The difficulty faced by the agriculturists therefore includes, scarcity of capital, bad shape of agricultural marketing, no analysis on weather report therefore sometimes ruining their crops and various other problems. Our aim is to eradicate or minimize the above-mentioned problems.

Our innovation is to make a website that will help this vast industry which is getting crippled by the problems leading to very unacceptable results like suicides.

The functioning of this portal will likely to be as a bank but it's nothing as bank. Our portal acts as a beneficiary to every stakeholder that is connected to us.

Our innovative portal/website aims to bring business and generate revenue by helping the agriculturists of this country.

This project of ours focus to the very basic need of this country and bring the urban and the rural together for the betterment of this country and its future.

BUSINESS PROCESS AIC

WHY?

"There is a huge gap between those who are willing to do something for the society and those who actually need it" and this is the major case with farming.

A farmer requires roughly ₹1000 to plough half an acre of land, this amount may not be a big amount for a city dweller, but it's a big deal for a farmer. Farming is a long and a hard-working process and requires patience.

Farming can give a good return than a fixed deposit account and its safe than stock market.

Therefore, we come with the idea of CFFF (Crowd Funding for Farming) this is the base or the root of our major innovation.

Our project aims to help the society of farmers and giving a direction to the people who are not sure where to invest their money in order for it to be safe and get a sound return within a short period of time.

According to the survey done by NABARD 52.5% farmers today are indebted with agricultural loan and now cannot pull themselves out from that debt and now they have no more assets to serve as a security, the main reason behind this debt is the interest rates the bank charges against the loan, the farmers are unable to pay the principal amount and are only kept busy in paying the interest. Therefore, leading our farmers in ending their lives and leaving their families in a penurious situation.

The mentioned problem is only one of the problems in the stack of problem that the farmers face today, farmers are fighting for MSP from the government which only for the limited crops and not all of them. Therefore, leading the farmers to sell their crops sometimes at loss, this happens due to a stair in the process called middleman, the rice that we buy at ₹20-30 KG is comes through various middleman and due to these two things happen the farmers get a lower price for their crops and end price of the crop is high.

The third problem that farmers faces is that they do not have information about the crops to be produced which could be sold at a good price and produce crops which are in sufficient quantity resulting in the dis-balance of the supply demand chain and therefore the price of the crop falls and since for example everyone is busy in producing rice or wheat and no one is producing onions or tomatoes the price of these crops automatically goes high which is again a problem for the citizens and therefore giving profit to the handful of farmers or middle traders.

The next problem that an agriculturist can face is that they do not have any weather forecast about their region or they do not what is the level of ground water or the canals will be opened for irrigation or not meaning poor irrigation information sometimes can kill the crop therefore a beforehand information is important in order for the crop to flourish also the farmers do not have any knowing of their soil productivity and moisture therefore sometime leading them to produce crops in the land where the soil is not good leading in a poor production of the crop.

The above mentioned is the some of the problem that we will try to solve making an ample amount of profit and will be win-win situation for every stake holder that is related to our innovative project.

Now since we have discussed the obstacles for around the one-fourth of the Indian population which is involved in agriculture and therefore makes it huge market to explore.

The agriculture industry is totally unmonitored and unorganized and therefore the monitoring of this sector will prove to be a profitable market.

Now we through our project have provided solution helping the farmers and have tried to give an alternative direction for investment with a higher interest within a short period of time.

HOW?

The research done by "**Shodhganga: A Reservoir of Indian theses**" says that on an average a farmer can earn profit up to ₹18,000 per acre of land for one harvest of Paddy. This amount may vary respective of states.

We through our website have decided to start a funding for the needful farmers who need money in order to do farming at a whooping **"0%" interest rate.** The farmer who wish to avail our services have to register with us and get verified thoroughly if they are eligible for our services or not, once verified these farmers will have a profile on our website for funding.

The profile of the farmer will contain various fields e.g.-

Name, photograph	Prabhat Yadav
Money needed	**₹10000**
Crop to be produced	Paddy
Expected time of return	July 2019
Interest rate for investor	10%

For the farmer if they want to start the farming in the month of October for a certain crop they have to register with us 5 to 6 months prior so that required funding can be collected for their farming process to be successful, because crowd funding is little different from other funding since the loan amount is not funded by a single person having a lot of money, it is being funded by the crowd same people as we are and requires time. This was the solution of the 1st problem of the loan that the farmers take from bank or zamindars with higher interest rates that they are unable to repay, here they can take loan from us without any interest i.e. **"0%"** interest.

The second problem that comes to the farmers is middle traders or the middle man which give a very low amount to the farmers to their crop. Our service will be here to eradicate the functioning of the middle man, any farmer i.e. taking loan from for farming has to sell the crop or the product directly to us.

Selling the crop directly to us is the key where we will get our profit and will be able to give our investors the return that we promised.

Now since we will be acting as a middleman we can sell these crops at a higher rate to the companies who make products by buying crops for the market like "Ashirvaad", "Patanjali" makes flour and other farm products, we can leverage these companies to be our partner and sell them the crop that we obtain from the farmers.

Now let us take a scenario to explain this situation.

Prabhat Yadav a farmer from Uttar Pradesh needs ₹10000 for the farming of paddy in one acre of land he had a good harvest and now he is ready to sell his harvest to us for the amount he has taken loan from us, and if he wish to sell more he can sell more and take the remaining amount from us for his crop, now we have the crop of around ₹10000 which we can sell at a higher price to our partners, let us say if we sold that crop of only ₹13000, then also we have a profit of 3000 later if we return our investor the principal amount of ₹10000 and the interest of 10% for six months for 10000 is 500 meaning we have 2500 profit, we can also increase or decrease this interest rates according to the real market situation at that point of time.

This is win-win situation for every stake holder as mentioned above, first, the farmers get a loan without any interest, second, the farmer don't have to search for middlemen in order to sell their crop since they can directly sell to us, third, the investor gets a whooping interest on his investment that no one can deny, and finally we are also making good amount of money.

Now, we have solved the first two problems for the farmers we thought to do better to the farmers and the society and will try to make supply-demand balance by assisting the farmers the type of crop they should produce for a particular year. Here where the data analytics of our project enters analyzing the crop produced and consumed and therefore how much more crop will be needed for a particular type to maintain the balance.

We will also try to provide the real time weather analysis to the farmers so that they should have a beforehand information in order to protect their crop from heavy rains. Farmers in the villages have a very limited information about the weather and generally depends on open eye analysis of air and sky. This will provide a little help to save their crop.

We will also try if possible provide our farmers with IOT devices so that they can or we can assess their crop in the real time for moisture other factors of the soil that is important for an excellent soil for an outstanding crop, or if not with IOT devices we can have a research lab facility available for our farmers so that they can have their soil tested.

This innovative of project of ours as mentioned above will try to help the society and make money at the same time.

The industry of the agriculture is the least risky sector and at the present time it is totally unorganized and this is what makes it the right time to explore this sector of the industry.

SCOPE OF OUR INNOVATION

A business innovative idea must be an idea which must be implementable as well as expendable if required it must be both implementable using forward and backward engineering. With proper business plan and model. For a Good business idea and true innovation, you need human interaction, conflict, argument and debate. Innovation is the ability to see change as an opportunity not a threat. So, the business model must have some scope of development and expansion. The following things are the classification of the scopes of our business idea for making Revenue:

1. REVENUE:

The business idea is not considered as a good and effective if it cannot create sufficient and expected revenue through that process. Because our main motive is to help farmers by providing them money with zero percent interest. We have to make our revenue by targeting the business authorization those are buying the crops from us we have to make our maximum possible profit from that dealings. At the same time, we can make money through selling of our web space to some advertisers. May be setup an Ad sense account for this or they have direct access to their own advertisers.

2. STOCK MARKET:

Stock market is a platform through which companies raise money to be used in their business expansion. Companies do not earn profit directly from or through share market. Company earns profit only through its operations and not through shares. When shares are offered to the public, its intention is to raise or borrow money from public by sacrificing its ownership to shareholders. This money raised through shares are used for its business operations and for its expansion. A stock is a type of security that signifies ownership in a corporation and represents a claim on part of the corporation's assets and earnings. The efficient operate and analyses of outstanding, authorized share, market capitalization and earning per share, with efficient selling and buying of stock leads a company to raise money to be used for further expansion .Outstanding share are the total stock a company to public investors, company officers, insiders individuals restricted chairs, investors .we can use outstanding market share to calculate our market capitalization and our earning per share ,which are the two important parameters for our company to decide whether to sell or buy stocks. Our outstanding share

must be less or equal to our authorized share. Authorized share refers to maximum number of shares, we can be allowed to issue according to our article of incorporation and a late vote by its shareholders. We must ensure that our Outstanding share must be fewer than authorized share. Because we might hold on to some other stock to retain control and to have the option to raise by selling more stocks later. If we want to decrease our outstanding share we can conduct a buyback and repurchase some of our stock previously issued if we think our stock is good investments or undervalued, on the other hand we can increase our outstanding share by splitting the stock which doubles our outstanding share. We can also utilize with our earnings and profit by three ways dividend, acquiring business and re repurchasing our own stocks.

3. DEVELOPMENT:

In every business model it's very important to have feedback loop where we are constantly thinking that what we have done and how we would be doing it better. The first step is to establish that something is possible, then the probability will occur. We think many our idea a successful one we have to think about welfare of all our investors, business partners and specially the farmers because the farmers will be the face of our success. And we think giving money to a farmer is not sufficient for the betterment of the farmers as well as the society of India. We have to teach them how to earn money efficiently which open a huge field of scope of development of our idea. In future we can guide farmers who to use seeds and fertilizer more efficiently with less investments, and will make them aware of new methods of cultivation and how to welcome new technologies like Internet of things, data analysis etc. in the field of cultivation. In future we will try to provide a better and global platform for the farmers where they will directly sell their crops to the needy private or governmental farms without any third-party interference.

FUNCTIONAL REQUIREMENTS

The system will be designed to be user friendly. The user friendly and interactive interfaces design helps to achieve this by enabling investors and manufacturers to easily browse through the borrowers list with just a few clicks and also allows the donors to quickly go through the payment checkout process. The system will be simple to use.

Manufacturers Requirements

MR01	The system shall enable the manufacturers to create an account, login to the system, browse for agricultural crops and place an order.
MR02	The system shall able to display the borrower information to the manufacturers based on different categories and localities.
MR03	The system shall generate online agreement form for those manufacturers willing to invest much before placing the order for agricultural crops as return.
MR04	The system shall display availability of agricultural crops, the crop items ordered, the individual crop item prices and the total order amount.
MR05	The manufacturer shall specify whether the order is to be picked up or delivered.
MR06	The system shall prompt manufacturer to confirm the order.
MR07	The system shall provide the facility of online money transfer for the manufacturers.
MR08	The system shall enable the manufacturers to track the status of their placed order.
MR09	The system shall generate e-receipt for the manufacturers after successful fund transfer.
MR10	The system shall send the ROI (Return of Investment) notification to the manufacturers.

Investors Requirements

IR01	The system shall enable the investors to create an account, login to the system, select the borrowers and contribute money towards the borrower.
IR02	The system shall able to display the borrower information to the investors based on different categories and localities.
IR03	The system shall generate online agreement form for the investors before initiating the investment process.
IR04	The system shall prompt the investor to contribute min Rs.100 for money transfer.
IR05	The system shall provide the facility of online money transfer for the investors.
IR06	The system shall enable the investors to track the status of their investment.
IR07	The system shall generate e-receipt for the investors after successful fund transfer.
IR08	The system shall send the ROI (Return of Investment) notification to the investors.

Donors Requirements

DR01	The system shall enable the donors to select the borrowers and donate money to the borrower/organization.
DR02	The system shall able to display the borrower information to the donors based on different categories and location.
DR03	The system shall provide the facility of online money transfer for the donors.
DR04	The system shall prompt the donor to provide his/her basic details before fund transfer.
DR05	The system shall generate online tax exemption receipt for the donors after successful donation.
DR06	The system shall send notification about borrowers to the donors.

NON-FUNCTIONAL REQUIREMENTS

A non-functional requirement is a requirement that specifies criteria that can be used to judge the operation of a system, rather than specific behaviours. Some of the non-functional requirements include:

Safety Requirements

SR01	The system shall log every state and state change of every surface computer and display to provision recovery from system failure.
SR02	The system shall be capable of restoring itself to its previous state in the event of failure (system crash or power loss).
SR03	The system should be safe to use both for investors and manufacturers.
SR04	The system should have provision for data backup.

Performance Requirements

PR01	The system server shall be capable of supporting no less than 200 concurrent connections from any combination of system devices.
PR02	The system server shall capable of supporting an arbitrary number of devices that is, it shall provide no limit on how many devices are in the system.
PR03	The server shall be capable of supporting an arbitrary number of active donor/investor payments, that is, no payments shall be lost under any circumstances.
PR04	The system should have sufficient network bandwidth.
PR05	The system should be easily maintainable.
PR06	The system should have good performance-time and fast response time.
PR07	The system should have usability by target user community, i.e., it should be easy to use.
PR08	The system should have expandability i.e., the system should be upgradable (if required in future).

Security Requirements

SER01	Wireless communication throughout the system will be encrypted using SSLX3 at the application layer and WPA2_PSK link layer.
SER02	The WPA2-PSK password used for wireless communication must have a bit strength of at least 80 bits.
SER03	The WPA_PSK password used for wireless communication must be changed every three months.
SER04	The password used for login for both investors and manufacturers must have a bit strength of at least 64 bits.
SER05	The system should keep the confidential data of the investors, donors and manufacturers safe and protected from external access (such as debit card number, pins, passwords etc.)
SER06	The system shall provide two level of access: **1>** A supervisor level for unrestricted access to system functionality. **2>** A user level for access to dealing functionality.
SER07	The system shall require an investor or a manufacturer to login using a username and password.
SER08	Generated code should be bug free.
SER09	System should contain advanced antivirus software.

TECHNICAL FEASIBILITY

Addressing Operational Feasibility: -

- The development of specific technical feasibility criteria can be useful to organize the information properly, increase overall transparency, and promote a stronger base for the recommendations provided at the end of the Appraisal Phase.
- Assessing technical feasibility can also highlight specific risks of the project that should be considered for the green light decision.
- Specific viability criteria, appropriate for the type of infrastructure and the corresponding services, should be used Those criteria should address, at least, the following issues.
  1. Does the infrastructure design meet the need specified during the Identification Phase?
  2. Is the proposed technology (if a specific technology is being proposed, this may not always be the best approach as it may constrain innovation) proven or can the associated risks be properly managed or allocated?
  3. Does the technical description of the project avoid, as far as possible, significant geo-technical risks? Does it avoid other unbearable technical risks?
  4. Can the service be specified in terms of outputs? If so, can the service be measured adequately though performance indicators?
  5. Can the main technological changes in the service delivery be satisfactorily estimated?

Operational Feasibility of our project: -

- Operationally our project has a high feasibility factor and low risk threshold. We are in the intermediate position between farmers and investors. Business structure is completely simple, through our portal all investors of social media can see the farmers who need some help. They can invest their money to help them. In return they will demand some profit. We will demand some product-based profit from farmers and will sell to the tier-up company. There will be some raw profit which will be shared between us and investors.

Technical Implementation: -

- Technically implementing this kind of portal is completely feasible. The portal will be built using **HTML, CSS, PHP** or **JAVA, JSP** technology. A java-based portal with JSP/servlet web contact, JDBC driver and spring framework does show high performance. But it entirely depends on coding style and coding practice. Initially JDBC driver will be used to connect java and SQL database. There will be three kinds of database
  1. Farmer database
  2. Database of tier-up company and
  3. Investor database.
- There will be different UI/UX for farmers, tier-up companies and investors. We will use third party gateway for transfer of money, and third-party shipping service for transfer of raw product.
- There will be a real time chat system to be always connected with the clients.

Database Connectivity: -

```
import java.sql.*;
import javax.swing.JOptionPane;
public class javaconnect {
   Connection conn;

   public static Connection ConnecrDb()
   {
    try{
        Class.forName("org.sqlite.JDBC");
        Connection
conn=DriverManager.getConnection("jdbc:sqlite:C:\\Users\\kiit1\\Documents\\NBP\\Crowdfunding\\LN1.sqlite");
        return conn;
    }
       catch(Exception e)
       {
          JOptionPane.showMessageDialog(null,e);
          return null;
       }
   }
}
```

-----we will be using SQLite manager as a database.

Code for security login to enter into interface:-

```
import java.sql.Connection;
import java.sql.PreparedStatement;
import java.sql.ResultSet;
import javax.swing.JOptionPane;
import javax.swing.UIManager;

/*
 * To change this license header, choose License Headers in Project Properties.
 * To change this template file, choose Tools | Templates
 * and open the template in the editor.
 */

/**
 *
 * @author 1506085
 */
public class Login extends javax.swing.JFrame {
  Connection conn;
  ResultSet rs;
  PreparedStatement pst;
   public Login() {

      super("Login");
      initComponents();

      conn=javaconnect.ConnecrDb();
   }
```

```
/**
 * This method is called from within the constructor to initialize the form.
 * WARNING: Do NOT modify this code. The content of this method is always
 * regenerated by the Form Editor.
 */
@SuppressWarnings("unchecked")
// <editor-fold defaultstate="collapsed" desc="Generated Code">
private void initComponents() {

    jPanel1 = new javax.swing.JPanel();
    jLabel2 = new javax.swing.JLabel();
    jTextField1 = new javax.swing.JTextField();
    jLabel3 = new javax.swing.JLabel();
    jLabel4 = new javax.swing.JLabel();
    jPasswordField1 = new javax.swing.JPasswordField();
    jLabel5 = new javax.swing.JLabel();
    jButton1 = new javax.swing.JButton();
    jButton2 = new javax.swing.JButton();
    jLabel1 = new javax.swing.JLabel();
    jButton3 = new javax.swing.JButton();

    setDefaultCloseOperation(javax.swing.WindowConstants.EXIT_ON_CLOSE);


jPanel1.setBorder(javax.swing.BorderFactory.createTitledBorder(javax.swing.BorderFactory.
createLineBorder(new java.awt.Color(0, 102, 102)), "Login",
javax.swing.border.TitledBorder.DEFAULT_JUSTIFICATION,
javax.swing.border.TitledBorder.DEFAULT_POSITION, new java.awt.Font("Tahoma", 0, 24),
new java.awt.Color(0, 102, 102))); // NOI18N
```

```
        jLabel2.setFont(new java.awt.Font("Tahoma", 0, 18)); // NOI18N
        jLabel2.setText("Password");

        jLabel3.setFont(new java.awt.Font("Tahoma", 0, 14)); // NOI18N
        jLabel3.setForeground(new java.awt.Color(255, 0, 0));
        jLabel3.setText("Trouble Login...!");

        jLabel4.setIcon(new
javax.swing.ImageIcon("C:\\Users\\kiit1\\Documents\\NetBeansProjects\\Login_Systems\\
user.png")); // NOI18N

        jLabel5.setIcon(new
javax.swing.ImageIcon("C:\\Users\\kiit1\\Documents\\NetBeansProjects\\Login_Systems\\
Password.jpg")); // NOI18N

        jButton1.setFont(new java.awt.Font("Tahoma", 1, 18)); // NOI18N
        jButton1.setForeground(new java.awt.Color(0, 204, 51));
        jButton1.setIcon(new
javax.swing.ImageIcon("C:\\Users\\kiit1\\Documents\\NetBeansProjects\\Login_Systems\\l
ogin.png")); // NOI18N
        jButton1.setText("Login");
        jButton1.addActionListener(new java.awt.event.ActionListener() {
            public void actionPerformed(java.awt.event.ActionEvent evt) {
                jButton1ActionPerformed(evt);
            }
        });
        jButton2.setFont(new java.awt.Font("Tahoma", 1, 18)); // NOI18N
        jButton2.setForeground(new java.awt.Color(0, 204, 51));
        jButton2.setIcon(new
javax.swing.ImageIcon("C:\\Users\\kiit1\\Documents\\NetBeansProjects\\Login_Systems\\S
ign up.png")); // NOI18N
        jButton2.setText("Signup");
```

```
        jButton2.addActionListener(new java.awt.event.ActionListener() {
            public void actionPerformed(java.awt.event.ActionEvent evt) {
                jButton2ActionPerformed(evt);
            }
        });

        jLabel1.setFont(new java.awt.Font("Tahoma", 0, 18)); // NOI18N
        jLabel1.setText("Username");
        jButton3.setFont(new java.awt.Font("Tahoma", 1, 18)); // NOI18N
        jButton3.setForeground(new java.awt.Color(255, 0, 0));
        jButton3.setIcon(new
javax.swing.ImageIcon("C:\\Users\\kiit1\\Documents\\NetBeansProjects\\Login_Systems\\f
orgot password.png")); // NOI18N
        jButton3.setText("Forgot Password");
        jButton3.addActionListener(new java.awt.event.ActionListener() {
            public void actionPerformed(java.awt.event.ActionEvent evt) {
                jButton3ActionPerformed(evt);
            }
        });
        javax.swing.GroupLayout jPanel1Layout = new javax.swing.GroupLayout(jPanel1);
        jPanel1.setLayout(jPanel1Layout);
        jPanel1Layout.setHorizontalGroup(
            jPanel1Layout.createParallelGroup(javax.swing.GroupLayout.Alignment.LEADING)
            .addGroup(jPanel1Layout.createSequentialGroup()
                .addContainerGap()
                .addGroup(jPanel1Layout.createParallelGroup(javax.swing.GroupLayout.Alignment
.LEADING)
                    .addGroup(javax.swing.GroupLayout.Alignment.TRAILING,
jPanel1Layout.createParallelGroup(javax.swing.GroupLayout.Alignment.LEADING)
                        .addComponent(jLabel1)
                        .addGroup(jPanel1Layout.createSequentialGroup()
```

```
                .addGroup(jPanel1Layout.createParallelGroup(javax.swing.GroupLayout.Alig
nment.LEADING)
                    .addComponent(jLabel3)
                    .addComponent(jLabel2, javax.swing.GroupLayout.PREFERRED_SIZE, 92,
javax.swing.GroupLayout.PREFERRED_SIZE))
                .addGroup(jPanel1Layout.createParallelGroup(javax.swing.GroupLayout.Alig
nment.LEADING)
                    .addGroup(jPanel1Layout.createSequentialGroup()
                        .addGap(52, 52, 52)
                        .addGroup(jPanel1Layout.createParallelGroup(javax.swing.GroupLayout
.Alignment.LEADING)
                            .addComponent(jTextField1,
javax.swing.GroupLayout.PREFERRED_SIZE, 213, javax.swing.GroupLayout.PREFERRED_SIZE)
                            .addComponent(jPasswordField1,
javax.swing.GroupLayout.PREFERRED_SIZE, 213,
javax.swing.GroupLayout.PREFERRED_SIZE))
                        .addGap(29, 29, 29)
                        .addGroup(jPanel1Layout.createParallelGroup(javax.swing.GroupLayout
.Alignment.LEADING)
                            .addComponent(jLabel4)
                            .addComponent(jLabel5)))
                    .addGroup(jPanel1Layout.createSequentialGroup()
                        .addGap(18, 18, 18)
                        .addComponent(jButton3, javax.swing.GroupLayout.PREFERRED_SIZE,
228, javax.swing.GroupLayout.PREFERRED_SIZE)))))
            .addGroup(javax.swing.GroupLayout.Alignment.TRAILING,
jPanel1Layout.createSequentialGroup()
                .addComponent(jButton1)
                .addGap(40, 40, 40)
                .addComponent(jButton2)
                .addGap(56, 56, 56)))
        .addContainerGap(javax.swing.GroupLayout.DEFAULT_SIZE, Short.MAX_VALUE))
    );
```

```
jPanel1Layout.setVerticalGroup(
    jPanel1Layout.createParallelGroup(javax.swing.GroupLayout.Alignment.LEADING)
    .addGroup(jPanel1Layout.createSequentialGroup()
        .addContainerGap()
        .addGroup(jPanel1Layout.createParallelGroup(javax.swing.GroupLayout.Alignment
.BASELINE)
            .addComponent(jTextField1, javax.swing.GroupLayout.PREFERRED_SIZE, 31,
javax.swing.GroupLayout.PREFERRED_SIZE)
            .addComponent(jLabel1, javax.swing.GroupLayout.DEFAULT_SIZE, 31,
Short.MAX_VALUE)
            .addComponent(jLabel4))
        .addGap(31, 31, 31)
        .addGroup(jPanel1Layout.createParallelGroup(javax.swing.GroupLayout.Alignment
.BASELINE)
            .addComponent(jLabel2, javax.swing.GroupLayout.PREFERRED_SIZE, 30,
javax.swing.GroupLayout.PREFERRED_SIZE)
            .addComponent(jPasswordField1, javax.swing.GroupLayout.PREFERRED_SIZE, 30,
javax.swing.GroupLayout.PREFERRED_SIZE)
            .addComponent(jLabel5))
        .addGap(50, 50, 50)
        .addGroup(jPanel1Layout.createParallelGroup(javax.swing.GroupLayout.Alignment
.BASELINE)
            .addComponent(jButton1, javax.swing.GroupLayout.PREFERRED_SIZE, 32,
javax.swing.GroupLayout.PREFERRED_SIZE)
            .addComponent(jButton2, javax.swing.GroupLayout.PREFERRED_SIZE, 32,
javax.swing.GroupLayout.PREFERRED_SIZE))
        .addPreferredGap(javax.swing.LayoutStyle.ComponentPlacement.UNRELATED)
        .addGroup(jPanel1Layout.createParallelGroup(javax.swing.GroupLayout.Alignment
.LEADING)
            .addComponent(jLabel3, javax.swing.GroupLayout.PREFERRED_SIZE, 23,
javax.swing.GroupLayout.PREFERRED_SIZE)
            .addComponent(jButton3, javax.swing.GroupLayout.PREFERRED_SIZE, 32,
javax.swing.GroupLayout.PREFERRED_SIZE))
        .addContainerGap())
```

```
        );
        javax.swing.GroupLayout layout = new javax.swing.GroupLayout(getContentPane());
        getContentPane().setLayout(layout);
        layout.setHorizontalGroup(
            layout.createParallelGroup(javax.swing.GroupLayout.Alignment.LEADING)
            .addGroup(layout.createSequentialGroup()
                .addGap(41, 41, 41)
                .addComponent(jPanel1, javax.swing.GroupLayout.PREFERRED_SIZE,
javax.swing.GroupLayout.DEFAULT_SIZE, javax.swing.GroupLayout.PREFERRED_SIZE)
                .addContainerGap(51, Short.MAX_VALUE))
        );
        layout.setVerticalGroup(
            layout.createParallelGroup(javax.swing.GroupLayout.Alignment.LEADING)
            .addGroup(layout.createSequentialGroup()
                .addContainerGap()
                .addComponent(jPanel1, javax.swing.GroupLayout.DEFAULT_SIZE,
javax.swing.GroupLayout.DEFAULT_SIZE, Short.MAX_VALUE)
                .addGap(47, 47, 47))
        );

        setSize(new java.awt.Dimension(566, 380));
        setLocationRelativeTo(null);
    }// </editor-fold>

    private void jButton2ActionPerformed(java.awt.event.ActionEvent evt) {

        setVisible(false);
        Signup ob=new Signup();
        ob.setVisible(true);
    }
```

```
private void jButton3ActionPerformed(java.awt.event.ActionEvent evt) {

    setVisible(false);
    Forgot ob=new Forgot();
    ob.setVisible(true);

}

private void jButton1ActionPerformed(java.awt.event.ActionEvent evt) {
    String sql="select * from Account2 where Username=? and Password=?";
    try
    {
        pst=conn.prepareStatement(sql);
        pst.setString(1,jTextField1.getText());
         pst.setString(2,jPasswordField1.getText());
         rs=pst.executeQuery();
         if(rs.next())
         {
            rs.close();
            pst.close();
            setVisible(false);
            Loading ob=new Loading();
            ob.setUpLoading();
            ob.setVisible(true);
         }
         else
         {
            JOptionPane.showMessageDialog(null,"Incorrect");
         }
```

```
        }catch(Exception e)
        {
            JOptionPane.showMessageDialog(null,e);
        }
           finally
            {
                  try
                  {
                    rs.close();
                  pst.close();
                  }
                  catch(Exception e)
                  {
                  }


                  }
    }
    /**
     * @param args the command line arguments
     */
    public static void main(String args[]) {
        /* Set the Nimbus look and feel */
        //<editor-fold defaultstate="collapsed" desc=" Look and feel setting code (optional) ">
        /* If Nimbus (introduced in Java SE 6) is not available, stay with the default look and feel.
         * For details see http://download.oracle.com/javase/tutorial/uiswing/lookandfeel/plaf.html
         */
        try {
            for (javax.swing.UIManager.LookAndFeelInfo info : javax.swing.UIManager.getInstalledLookAndFeels()) {
```

```
            /* if ("Nimbus".equals(info.getName())) {
                javax.swing.UIManager.setLookAndFeel(info.getClassName());
                break;
*/
            UIManager.setLookAndFeel("com.jtattoo.plaf.acryl.AcrylLookAndFeel");
                }
        } catch (ClassNotFoundException ex) {

java.util.logging.Logger.getLogger(Login.class.getName()).log(java.util.logging.Level.SEVERE,
null, ex);
        } catch (InstantiationException ex) {

java.util.logging.Logger.getLogger(Login.class.getName()).log(java.util.logging.Level.SEVERE,
null, ex);
        } catch (IllegalAccessException ex) {

java.util.logging.Logger.getLogger(Login.class.getName()).log(java.util.logging.Level.SEVERE,
null, ex);
        } catch (javax.swing.UnsupportedLookAndFeelException ex) {

java.util.logging.Logger.getLogger(Login.class.getName()).log(java.util.logging.Level.SEVERE,
null, ex);
        }
        //</editor-fold>

        /* Create and display the form */
        java.awt.EventQueue.invokeLater(new Runnable() {
            public void run() {
                new Login().setVisible(true);
            }
        });
    }
```

```
    // Variables declaration - do not modify
    private javax.swing.JButton jButton1;
    private javax.swing.JButton jButton2;
    private javax.swing.JButton jButton3;
    private javax.swing.JLabel jLabel1;
    private javax.swing.JLabel jLabel2;
    private javax.swing.JLabel jLabel3;
    private javax.swing.JLabel jLabel4;
    private javax.swing.JLabel jLabel5;
    private javax.swing.JPanel jPanel1;
    private javax.swing.JPasswordField jPasswordField1;
    private javax.swing.JTextField jTextField1;
    // End of variables declaration
}
```

Listener code for chatting connection: -

```
package mychatapp.networking;

import java.io.BufferedReader;
import java.io.IOException;
import java.io.InputStream;
import java.io.InputStreamReader;
import java.net.ServerSocket;
import java.net.Socket;
import java.util.logging.Level;
import java.util.logging.Logger;
/**
 *
 * @author 1506085
 */
```

```
public class MessageListener extends Thread {
   ServerSocket server;
   int port= 8877;
   WritableGUI gui;
 public MessageListener(WritableGUI gui , int port)
{
    this.port=port;
    this.gui=gui;
      try {
         server=new ServerSocket(port);
      } catch (IOException ex) {
         Logger.getLogger(MessageListener.class.getName()).log(Level.SEVERE, null, ex);
      }
}
 public MessageListener()
{
      try {
         server=new ServerSocket(port);
      } catch (IOException ex) {
         Logger.getLogger(MessageListener.class.getName()).log(Level.SEVERE, null, ex);
      }
}
   @Override
   public void run() {
      Socket clientSocket;
      try {
         while((clientSocket=server.accept())!=null)
         {
            InputStream is=clientSocket.getInputStream();
            BufferedReader br=new BufferedReader(new InputStreamReader(is));
```

```
            String line=br.readLine();


            if(line!=null)
            {
               gui.write(line);
            }

         }
      } catch (IOException ex) {
         Logger.getLogger(MessageListener.class.getName()).log(Level.SEVERE, null, ex);
      }
   }
}
```

Transmitter Code

```
package mychatapp.networking;

import java.io.IOException;
import java.net.Socket;
import java.util.logging.Level;
import java.util.logging.Logger;

/**
 *
 * @author 1506085
 */
```

```
public class MessageTransmitter extends Thread{

    String message,hostname;
    int port;

    public MessageTransmitter()
    {

    }

    public MessageTransmitter(String message, String hostname, int port ) {
        this.message = message;
        this.hostname = hostname;
        this.port = port;

    }

    @Override
    public void run() {
        try {
            Socket s=new Socket(hostname,port);
            s.getOutputStream().write(message.getBytes());
            s.close();
        } catch (IOException ex) {
            Logger.getLogger(MessageTransmitter.class.getName()).log(Level.SEVERE, null, ex);
        }
    }


}
```

Additional Features: -

- There will be some additional features. Crop yield demand and price prediction to facilitate farmers, weather and soil prediction. By time series analysis.

Time series analysis algorithm: -

```
library(ggplot2)

library(knitr)

library(caret)

library(gmodels)

library(lattice)

library(ggplot2)

library(gridExtra)

library(Kmisc)

library(ROCR)

library(corrplot)

weather_data <-
read.csv(url("https://www.biz.uiowa.edu/faculty/jledolter/datamining/weather.csv"),
header = TRUE, sep = ",", stringsAsFactors = TRUE)

weather_data

kable(head(weather_data))

set.seed(1023)

colnames(weather_data)

str(weather_data)      # as it is the mixture of numerical and categorical data

(n<-nrow(weather_data)) # setting the no of rows

c(as.character(weather_data$Date[1]),as.character(weather_data$Date[n])) #Timeline span

all.equal(weather_data$RISK_MM>1,weather_data$RainTomorrow=="Yes")

all.equal(weather_data$RISK_MM > 1, weather_data$RainTomorrow == "Yes") #relation
and equality

all.equal(weather_data$Rainfall >1 , weather_data$RainToday == "Yes")
```

#eliminating correlated columns

```
weather_data2<-subset(weather_data,select= -
c(Date,Location,RISK_MM,Rainfall,RainToday))

colnames(weather_data2)

(cols_withNa <- apply(weather_data2, 2, function(x) sum(is.na(x))))

weather_data3 <- weather_data2[complete.cases(weather_data2),]

weather_data3
```

#Null hypothesis and factor variable

```
factor_vars<-names(which(sapply(weather_data3,class)=="factor"))

factor_vars <- setdiff(factor_vars, "RainTomorrow")

chisq_test_res <- lapply(factor_vars, function(x) {

 chisq.test(weather_data3[,x], weather_data3[, "RainTomorrow"], simulate.p.value = TRUE)

})

names(chisq_test_res) <- factor_vars #Rain tomorrow has direct relationship with
WindGustAir

chisq_test_res


#barchart plot 1 for {barchart_res$WindGustDir}

barchart_res <- lapply(factor_vars, function(x) {

 title <- colnames(weather_data3[,x, drop=FALSE])

 wgd <- CrossTable(weather_data3[,x], weather_data3$RainTomorrow, prop.chisq=F)

 barchart(wgd$prop.row, stack=F, auto.key=list(rectangles = TRUE, space = "top", title =
title))

})

names(barchart_res)<-factor_vars

barchart_res$WindGustDir
```

```
#barchart plot 2 for {barchart_res$WindDir9am}

barchart_res$WindDir9am   #WindDir9am has more than 30 NA  values

weather_data4 <- subset(weather_data2, select = -c(WindDir9am, WindDir3pm))

weather_data5 <- weather_data4[complete.cases(weather_data4),]

colnames(weather_data5)
```

#factor variables analysis with remaining columns

```
factor_vars <- names(which(sapply(weather_data5, class) == "factor"))
numeric_vars <- setdiff(colnames(weather_data5), factor_vars)
numeric_vars <- setdiff(numeric_vars, "RainTomorrow")
numeric_vars
```

#correlation plot4

```
numeric_vars_mat <- as.matrix(weather_data5[, numeric_vars, drop=FALSE])
numeric_vars_cor <- cor(numeric_vars_mat)
corrplot(numeric_vars_cor)
```

#checking linear relationship plot5

```
pairs(weather_data5[,numeric_vars],
    col=weather_data5$RainTomorrow)
weather_data5
```

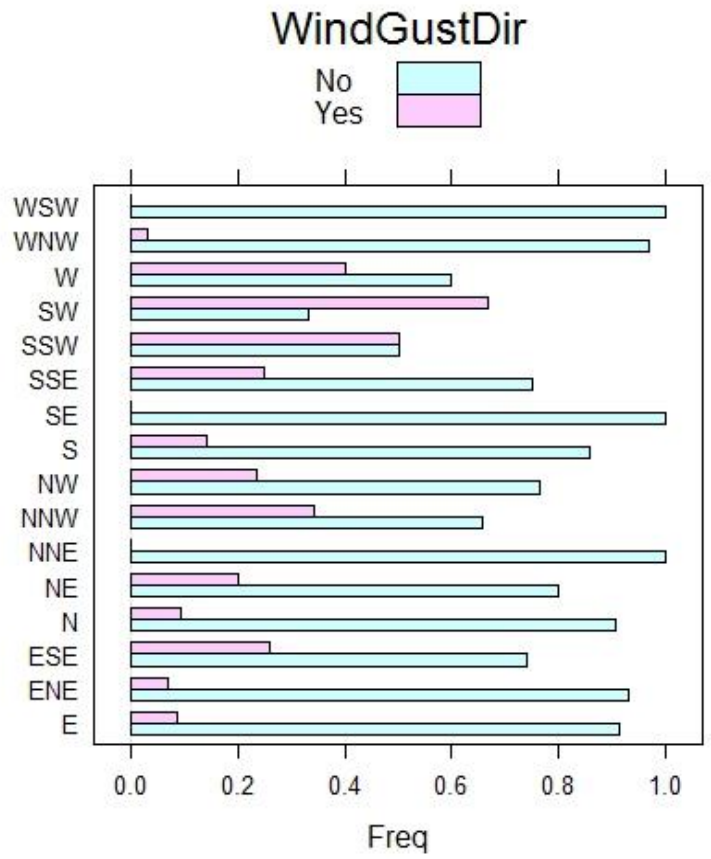
#Boxplot 5

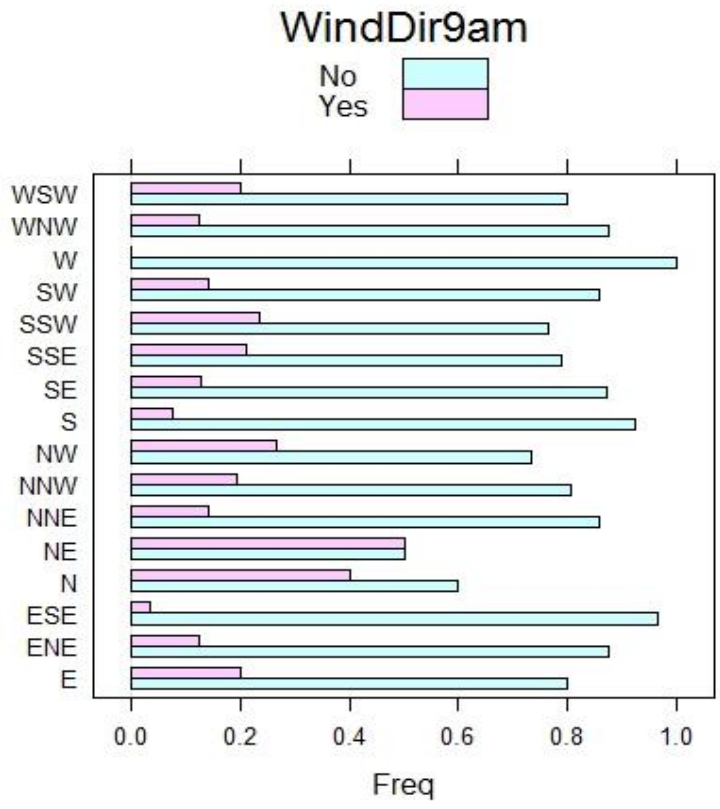
```
boxplot(weather_data5$MinTemp~weather_data5$RainTomorrow, ylab='MinTemp')
boxplot(weather_data5$MaxTemp~weather_data5$RainTomorrow, ylab='MaxTemp')

#tomorrow’s weather forecast at 9am of the current day
#tomorrow’s weather forecast at 3pm of the current day
#tomorrow’s weather forecast at late evening time of the current day


#9am: MinTemp, WindSpeed9am, Humidity9am, Pressure9am, Cloud9am, Temp9am
#3pm: (9am variables) + Humidity3pm, Pressure3pm, Cloud3pm, Temp3pm, MaxTemp
#evening: (3pm variables) + Evaporation, Sunshine, WindGustDir, WindGustSpeed
```

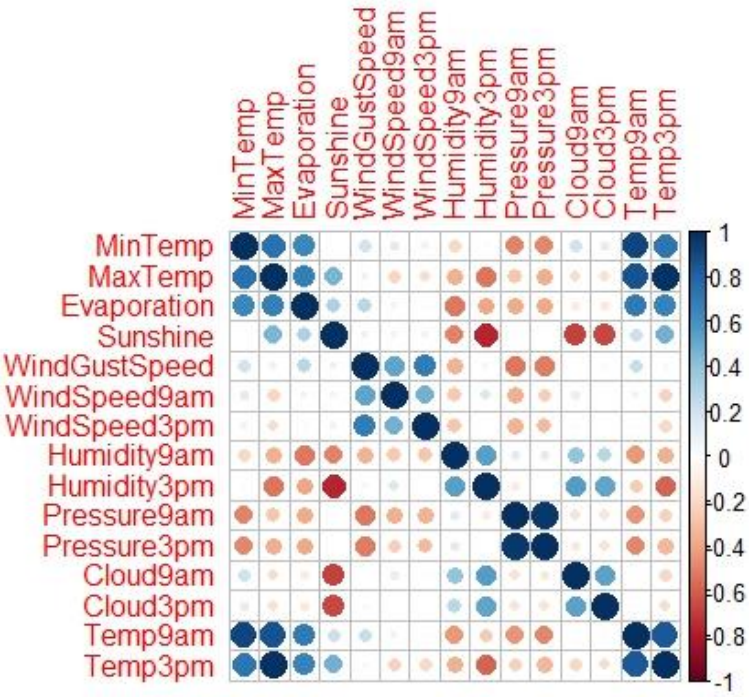
#REGRESSION MODEL

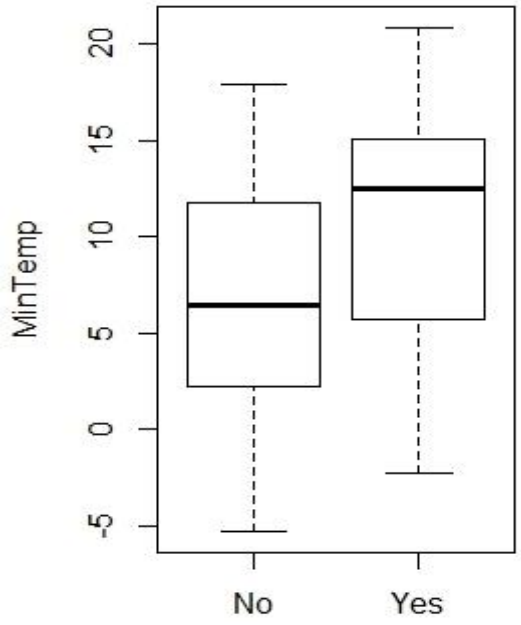
```
library(caret)
set.seed(1023)

colnames(weather_data5)

nrow(weather_data5)
sum(weather_data5["RainTomorrow"]=="Yes")
sum(weather_data5["RainTomorrow"]=="No")
train_rec<-createDataPartition(weather_data5$RainTomorrow,p=0.6,list=FALSE)
training<-weather_data5[train_rec]
testing <- weather_data5[-train_rec,]

sum(training["RainTomorrow"] == "Yes")/sum(training["RainTomorrow"] == "No")
sum(testing["RainTomorrow"] == "Yes")/sum(testing["RainTomorrow"] == "No")
```

For continuously answering of query bots will be implemented:


WindGustDir
No
Yes
WSW
WNW
W
SW
SSW
SSE
SE
S
NW
NNW
NNE
NE
N
ESE
ENE
E
0.0
0.2
0.4
0.6
0.8
1.0
Freq


WindDir9am
No
Yes
WSW
WNW
W
SW
SSW
SSE
SE
S
NW
NNW
NNE
NE
N
ESE
ENE
E
0.0
0.2
0.4
0.6
0.8
1.0
Freq


MinTemp
MaxTemp
Evaporation
Sunshine
WindGustSpeed
WindSpeed9am
WindSpeed3pm
Humidity9am
Humidity3pm
Pressure9am
Pressure3pm
Cloud9am
Cloud3pm
Temp9am
Temp3pm
1
0.8
0.6
0.4
0.2
0
-0.2
-0.4
-0.6
-0.8
-1


MinTemp
-5
0
5
10
15
20
No
Yes

RISK FACTORS

OPERATIONAL RISKS

- Lack of maintenance of website resulting the system to go offline for hours.
- Unexpected cancellation or return of order by the manufacturers.
- An interruption in delivery by adverse weather conditions, infrastructure issues and damage to supplier location.
- Fraudulent orders.
- Inconsistency in preparation, packaging, and delivery of higher quality cultivated crops with appropriate quantity.
- Failure of digital payment methods.

TECHNICAL RISKS

- Negligent errors in Website designing.
- Size of the database created or used by the web application.
- The Speed of data access from the distant database.
- Updates needed due to the introduction of essential requirements.
- Internet Service Provider (ISP) server crashes.
- Poor website design manifesting in long response times.
- Incapability of Donor/Investor or Manufacturers computer to handle the graphical interface.
- Insufficient bandwidth to handle traffic.

SCHEDULING RISKS

- Faulty Development time estimation.
- Improper resource tracking and management. All resources like staff, systems, skills of individuals etc.
- Unexpected project scope expansions.
- Development team having no clear vision on the project.
- Lack of leadership and governance.

INFORMATION RISKS

- Disclosing of intellectual property due to team members' association with competitors.
- The threat of damage to the online information about investors/manufacturers/farmers and project team members due to unauthorized access.
- Processing of modified or damaged information in transmission leading to incorrect results.
- Infringement of Copyright, patent or trade secrets by the materials used by the developers.

BUSINESS RISKS

- Unprotected domain names can be illegally taken by other organizations.
- Disputes between organization and manufacturing company/farmers regarding payment.
- Illegal use of the website for promotion.
- Changes in client policy like data access, data ownership, production strategy and marketing tactics.

SOME OTHER RISK FACTORS

(i) Production and technical risks

- Natural disasters like flood, drought, hailstorms and monsoon failure.
- Unavailability of equipment and spare parts.
- Outbreak of pests or diseases.

(ii) Human and personal risks

- Accidents, illness or death of the farmer.
- Quiet migration by farmer family.
- Inability of the farmer to repayment debt.

(iii) Marketing risks

- Unpredictable market price and cost of crops.
- Supply of cultivated crops.

(iv) Transaction Risks

- The Threat of malicious attacks on online transactions.

(v) Unauthorized Access Risks:

- Poor configuration and encryption of the system.
- Unreliable team members.

(vi) Security Risks:

- Authentication of farmers and manufacturing company.
- Breach of sensitive Card-holder data involves large fines.

ALTERNATIVE IDEAS

OPERATIONAL RISKS

- ***Unexpected Cancellation or Return of Order by the manufacturers***

a. Cancellation Policy

- According to our cancellation policy, if any manufacturing company decides to cancel its order, it must have to notify our organization immediately preferably by phone.
- The cancellation request will be accepted only prior to shipment without any compensation fee, otherwise, our organization shall have a right to charge the manufacturing company some cancellation fee with a right to compensate our farmers and delivery partners.

b. Return Policy

- According to our return policy, if any manufacturing company decides to return its order, its request will be accepted without any compensation charge only in the event of any of the following circumstances:

1. Order packaging being tampered or damaged at the time of delivery.
2. Wrong order being delivered.
3. Items missing from the order at the time of delivery.

- ***Fraudulent Orders***

- Here's how we can avoid fake orders on our website:

a) Call Them for Security Purpose

- By calling the manufacturing company to check the information they have provided. If the number is unavailable or the manufacturing company seems hesitant to comply with us, then we should terminate the processing of that order.

b) Visit the company to Confirm Once Before Preparing the Order

- We should visit the manufacturing company to confirm once if they want the order to be delivered. In case they do not reply we should immediately cancel the order.

c) Asking the company for Partial Payment against the Order

- We should ask the company to pay a minimum 50% of the total amount of crops being ordered before the shipment. Rest of payment amount can be collected after the successful delivery of the order.

- ***Interruption in Delivery by Adverse Weather Conditions, Infrastructure Issues and Damage to Supplier Location***

➢ As the manufacturing company's satisfaction is our major priority, so, we aim at serving our manufacturing company despite of any adverse conditions. So, we can implement online Real-time traffic analysis service (By Google Maps) in our web application so that our manufacturing company can trace the status of their orders.

➢ Besides, manufacturing company will be notified via phone call or email about the order delivery status. In case, we are unable to deliver the order, the manufacturing company will be informed about the issue and their paid amount will be refunded.

TECHNICAL RISKS

- ***Internet Service Provider (ISP) Server Crashes***

➢ To reduce the risk of server issues, we should choose a hosting company with backup servers and we need to provide a contractual agreement with that internet service provider who can provide 99.999% availability through their network facilities onto the internet.

- ***Insufficient Bandwidth to Handle Traffic***

➢ Most of the hosting companies place a limit on the amount of bandwidth that an e-business can use each month. A start up like ours does not require a lot of bandwidth, but with an increase in the business, the bandwidth consumption also increases. So, we should choose a host that offers the option to upgrade to a dedicated server which will be our own server with unlimited bandwidth.

- ***Poor Website Design Manifesting in Long Response Times***

➢ User experience matters and for the same purpose, our online market should load fast on user devices. Following are the ways which will be best for us to increase the speed of our website:

a. Use of Caching

1. This technique doesn't load data that is not needed.
2. It stores the data or a page temporarily into the memory and then data or page is accessed from the memory instead of loading it from the server.

b. Optimizing the Images

1. It can increase the loading speed of our site. So, it is necessary to reduce the size of the photos maintaining the quality.
2. Images For the same, we can use any of the image optimisers.

c. Using a Content Delivery Network

1. A content delivery network can reduce the load time and is good for sites, which have more traffic.
2. We can use content delivery networks like **AKAMAI, TATA CDN or MAXCDN.**

d. Using a Fast Web Host

1. We should not use cheap hosts if our site traffic is more than average.

e. Minimizing Round-Trip Times

1. Minimizing the number of "round trips" to the server can be done by combining multiple JavaScript files into a single file and then accessing the server.
2. This forces the browser to make one request, which will reduce load times.

f. Compressing our Website

1. Response times can be reduced by compression of files using Gzip application and we can even minify script files like CSS or js file.

g. Switching off All the Plugins we don't need or Use

1. Many sites have a lot of unused plugins which load different files and decrease the speed of the sites. So, they must be removed or switched off to optimize the site speed.

SCHEDULING RISKS

- ***Project Team Having No Clear Vision***

There are a lot of ways, a Project Manager can achieve establishing a vision by following some of the most effective steps given below:

a. Clarity of Vision

- ❖ **A clear vision is a pivot on which a project stands.**

➢ So, for a project manager, it is extremely important to understand his own role first and create a vision for executing a proper plan for facing the challenge.

b. Articulation of Vision

- ❖ **The better a Project Manager understands his vision, the better he will be able to relate it to his team.**

➢ For the long-term success of a project, it is very important for everyone involved in it to have a shared understanding of the project's goals and objectives.

➢ It is the task of the PM to reiterate to all those concerned, the commitment of the project at regular intervals, especially when there have been lapses.

c. Knowledge About the Team and The Trust in It

➢ Communication channels need to be open at all times and no question should be dismissed. Hence, a day can be spent for ensuring everybody is up to date with the technology as it pertains to our project.

➢ Our Project Manager must communicate with the team members individually about their strengths and weaknesses.

➢ The selections should be made purely based on merit.

- ***Faulty Development Time Estimation***

➢ People often underestimate the amount of time needed to implement projects, particularly when they are not familiar with the work that needs to be done.

➢ To estimate time effectively, we need to follow these 4 steps:

1. Understanding what is required.

2. Prioritizing activities and tasks.

3. Deciding whom we need to involve.

4. Doing our estimates.

Step 1: Understanding what is required

- By identifying all of the work that needs to be done within the project by using tools such as Business Requirements Analysis, Work Breakdown Structures, Gap Analysis and Drill-Down.

Step 2: Ordering These Activities

- By listing all of the activities identified in the step-1 in the order in which they need to happen.

Step 3: Deciding whom we need to involve

- By thinking as a group or by asking others, we can do the estimates ourselves.

Step 4: Making our Estimates

- By estimating the time needed for each task rather than for the project as a whole.

Preparing the Schedule

❖ Once we have estimated the time needed for each task, then we can prepare our project schedule by adding our estimates to the draft activity list that we produced in the above second step.

- ***Lack of Leadership and Governance***

Team Leader

➢ A **team leader** is someone who provides direction, instructions and guidance to a group of individuals or his team, for the purpose of achieving a certain goal.

Skills needed to be a project team leader

1. Team-building skills.

2. Problem-solving skills.

3. Good communicator.

4. Leadership Quality.

5. Ability to evaluate risks.

6. Ability to motivate people.

7. Good at critical thinking.

8. Ability to work under pressure.

Roles

- Some important roles of a team leader are to:

1. Develop a strategy the team will use to reach its goal.
2. Provide any training that team members need.
3. Communicate clear instructions to team members.
4. Listen to team members' feedback.
5. Manage the flow of day-to-day operations.
6. Create reports on the team's progress.

Responsibilities

1. Designing and applying appropriate project management standards.
2. Planning and monitoring the project.
3. Managing project risks, including the development of contingency plans.
4. Monitoring overall progress and use of resources, initiating corrective action where necessary.
5. Identifying and obtaining support and advice required for the management, planning and control of the project.
6. Conducting a project evaluation review to assess how well the project was managed.

BUSINESS RISKS

- ***Unprotected Domain Names Being Illegally Taken by Other Organizations***

➢ Domain Name is the face of any e-business and a valuable asset, so, we must protect it by the following steps:

1. **First,** we must ensure that we are the registrant for our domain and it is registered with our website's name, not with any individual member's name.
2. **Second,** in case we are unsure of the registrant of our Domain Name, then we can look it up in the Whole database which will display the current registrant, address, and servers allocated to the Domain Name.

3. **Third,** we must update our contact information like address, email address or contact number frequently to get information regarding renewal notices and to protect our Domain Name from getting lost due to non-renewal.

- ***Use of Website for Promotion***

i. Social Media Marketing

These are some of the essentials of Marketing on Social Media like Facebook, WhatsApp, Twitter and Instagram, we need to come up with a neat strategy to attract manufacturing companies/donors/investors like follows:

a. Creating GIFs/pictures focusing on the propagation of our organizations work.

b. Providing an active link to our website or mobile app that redirects to our organization's homepage.

ii. Email Marketing

a. Using CRM database and sending customized emails to manufacturing companies to order more.

b. Adding exclusive manufacturing company centric discounts to make our manufacturing companies feel loved.

iii. Promotion on Website and App

a. Sending push notifications to our investors/manufacturing companies via a mobile app.

iv. Paid Advertising

a. Digital Advertisement: We can use PPC (Pay-per-click) ad feature to promote our website so that investors/donors/manufacturing companies will get to see images featuring our organization's work.

b. Digital Printing- Flyers: We can contact newspaper vendors and become friends with them for ensuring our flyers are successfully getting attached with the newspapers being sent out.

- ***Payment Issues with the manufacturing company/farmers***

i. Be Proactive and Have a Process

- We must have a clearly defined process and policies for dealing with late payments as it will help our profitability.

ii. Contact the Client Immediately

- We should contact the client directly on the day payment becomes overdue via a phone call or arranging a meeting. During our conversation, we must:
  - Ask whether there have been any problems with the crops we have supplied.
  - State that we have not received payment and ask if they had problems paying.
  - Ask when the payment will be made.

iii. Nudge the Client Harder

- If we remain unpaid then, we should contact the person directly responsible for paying invoices in that defaulter manufacturing company.
- If payment is considerably delayed then, writing a formal letter stating a date when interest will start to emerge, will be the best choice.

iv. Accept the Inevitable

- If negotiations break down, then we must write a letter stating that the client is in breach of contract and we have no choice but to withdraw our services.
- The letter must contain the provocation of legal action and they will be held responsible for all debt recovery costs.

v. What NOT to do…

- We should never complain about a non-paying client to others, especially on social networks.

BONUS TIP: Prevention is Better than Cure.

INFORMATION RISKS

I. Being Realistic in Identifying the Confidential Information

a) Generally, confidential information is information that is known only within the business and is not publicly available.

b) Hence, before starting our project, we must be able to specifically identify what the information is that it needs to be confidential, which will allow us to support our determination.

II. Using Non-Disclosure Agreements With team members and other partners Having Access to Specific Information

a) Every individual and/or entity involved in the project must sign Non-Disclosure Agreements to ensure his/her obligation to not to disclose that intellectual information.

III. Limiting Access to The Confidential Information

a) Access to this confidential information should be on a need-to-know basis, i.e. depending on the size of our business and the nature of our confidential information, not everyone should be given access to the information.

IV. Protecting Computerized Confidential Information with Advanced Technology

a) Access to confidential information on computers in use should be password protected and it needs to be changed at regular intervals, i.e. every 3-6 months.

V. Labelling Information as Confidential

a) Placing labels on confidential information or on the container in which it is kept, can be useful in reminding the team members that the information is confidential.

VI. Conducting Member Exit Interviews

a) Exit interviews are generally important to remind departing team members their obligations to the project agreement to keep information confidential.

TRANSACTION RISKS

- To run a successful e-commerce business, one needs to ensure that the site is well protected and secured from the various forms of threats, otherwise, no manufacturing companies would like to buy agricultural crops on our website even after visiting it.
- We have to use SSL certificates for ensuring the security of an e-commerce website. There are few authorized companies that offer reliable SSL certificate to the users like Verisign, Thawte, Net4 etc.

- ***Unauthorized Access Risk***

A. POOR CONFIGURATION AND ENCRYPTION OF DATA

- Message encryption is used to protect sensitive data in transport over the network. Encryption does not protect the integrity of but only its confidential. To prevent this sensitive data, we have to:
  1. Use message security or transport security to encrypt messages.
  2. Use proven platform provided cryptography.
  3. Periodically change your keys.

B. WEAK PASSWORD MAKE EASY ACCESS FOR OUTSIDERS

- A Strong password is one that is more secure by virtue of being difficult for a machine or a human to guess. Password strength can be achieved by incorporating the following characteristics; the more characteristics you incorporate into your password, the stronger it will be.
- Characteristics of strong passwords:
  1. At least 8 characters—the more characters, the better.
  2. A mixture of both uppercase and lowercase letters.
  3. A mixture of letters and numbers.
  4. The inclusion of at least one special character, e.g. @ # ?]

SECURITY RISKS

- ***Authentication for Manufacturing companies and Investors***

➢ Authentication is the mechanism by which our client can establish their identity with our service, using a set of credentials that prove their identity. A username is an example of an identity while a password is an example of a credential.

➢ There are also many remote authentication methods like

a) The password authentication protocol (PAP).

b) The Shiva PAP (SPAP).

c) Challenge-handshake authentication protocol (CHAP).

d) Microsoft CHAP (MS-CHAP).

e) The Extensible Authentication Protocol (EAP).

To prevent vulnerabilities on authentication process we have to:

a) Use strong password policies.

b) Do not store credentials in an insecure manner.

c) Use authentication mechanisms that do not require clear text credentials to be passed over the network.

d) Encrypt communication channels to secure authentication tokens.

e) Use secure HTTP(HTTPS) only with forms authentication cookies.

f) Separate anonymous from authentication pages.

g) Use cryptographic random number generators to generate session IDs.

- ***Breaching of Sensitive Cardholder Data***

A. EMV and security

1. Dynamic card authentication protects against counterfeit cards.
2. Cardholder verification using PIN authenticates the cardholder and protects against acceptance of lost and stolen cards if a merchant chooses to use PIN technology and it is supported by their process and bank.
3. Transaction authorization using issuer defined rules to authorize transaction reduces the chance of transaction interception.

B. Encryption

1. Encryption of cardholder data with strong cryptography is an acceptable method of rendering the data unreadable.

C. Tokenization

1. Tokenization replaces sensitive data such as credit card numbers with tokens and is one of the data protection and audit scope reduction method.

HUMAN AND PERSONAL RISKS

- ***Accidents, illness or death of the farmer***

We know that **Health Is Wealth**. As our organization is liberal to all the farmers and we aim at our farmer's development, if a farmer faces an accident or suffers from illness, then, we shall provide more time to that farmer to repay the debt he has taken.

In case, if a farmer passes away unfortunately before repaying the debt, then, we may collect half of the debt amount from his successor **provided that his successor's occupation is farming and his financial situation is good for repaying the loan amount.**

Otherwise, our organization will repay the debt to the investors who have invested their money for that farmer without causing problem to that farmer's family.

- ***Quiet migration by farmer family***

Before issuing loan to the farmer, we must check if any loan amount is still pending against that farmer and how he is repaying the debt. It is also essential to have the information about the farmer who is willing to get a loan from us.

- ***Inability of the farmer to repayment debt.***

If such situation occurs, then our organization shall investigate the matter and will be conducting a meeting with the farmer to assist him.

Based on the investigation report, we shall provide more time to that farmer or we shall take some crops from that farmer and sell it to the manufacturing companies to collect the debt amount.

PRODUCTION AND TECHNICAL RISKS

- ***Natural disasters like flood, drought, hailstorms and monsoon failure.***

Our organization shall use some sophisticated technologies like Data Analytics to predict the weather conditions in different geographical locations to assist our farmers in the cultivation process.

We shall communicate our farmers in regular interval over the mobile phone to notify them about the weather conditions and its effects on the crop production.

If the crop production is hampered due to the above-mentioned natural disasters, then, we shall give our farmers more time for recovery/treatment of affected crops without charging any interest.

- ***Unavailability of equipment and spare parts.***

If any of our farmer claims that he is having problems in the farming process due to technical/mechanical issues in the equipment, then our organization shall help the farmer in repairing of defect equipment by contacting with the service station.

We shall also help our farmers to have their own farming equipment if any of our farmer wants, by providing them a loan at low rate of interest.

- ***Outbreak of pests or diseases.***

Our organization shall tie up with the **Indian Council of Agricultural Research (ICAR)** institute for providing farming related tips and suggestions for crop production to our farmers, so that in case of outbreak of pests or diseases, our farmers can get the suggestions or feedbacks directly from experienced agricultural researchers.

CONCLUSION

The farmers of the Indian society are the most underprivileged and distressed, No one cares for the farmers including Government and therefore this innovative project of ours is a step towards the largest sector of India which has been untouched and unorganized for decades now, helping them will not just give us a social visibility but it is the largest business opportunity that no one has thought.

Making this project real from an Idea is itself a very huge task and requires huge amount of support, and who else will be better than the Accenture to ask for a consideration on this project since they are the one who inspire us youngsters to make our Idea or dream a reality.

Through this Accenture Innovation Challenge, we have tried to do something that is Innovative and beneficial for the society as well as a business opportunity to grab.