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| **No.** | **Div.** | **Roll** | **GR No.** | **Name** | **Mobile No.** | **Email**  **( not @vit.edu)** | **Email**  **(\*@vit.edu)** |
| **1** | D | 09 | 1710912 | Mayank | 9620957813 | [tyagianjeet@gmail.com](mailto:tyagianjeet@gmail.com) | [Mayank.tyagi17@vit.edu](mailto:Mayank.tyagi17@vit.edu) |
| **2** | D | 10 | 1710065 | Samruddha Mohire | 8668704562 | [Samruddha.mohire1999@gmail.com](mailto:Samruddha.mohire1999@gmail.com) | [Samruddha.mohire17@vit.edu](mailto:Samruddha.mohire17@vit.edu) |
| **3** | D | 20 | 1710909 | Asheesh Nellutla | 7875944655 | [Asheesh.nba@gmail.com](mailto:Asheesh.nba@gmail.com) | [Asheesh.nellutla17@vit.edu](mailto:Asheesh.nellutla17@vit.edu) |
| **4** | D | 75 | 1710989 | Udit Singhal | 9784912800 | [Uditbsinghal@gmail.com](mailto:Uditbsinghal@gmail.com) | [Udit.singhal17@vit.edu](mailto:Udit.singhal17@vit.edu) |
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| **Title: *Crop Recommendation System*** |

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| **Synopsis:** |
| With the impact of climate change in India,the majority of the agricultural crops are being badly affected in terms of their performance over a period of the last two decades. Predicting the crop yield well ahead of its harvest would help the policy makers and farmers for taking appropriate measures for marketing and storage. Such predictions will also help the associated industries for planning the logistics of their business. Various research has been done exploring the connection between large scale climatologically phenomena and crop yield. Crop prediction technology is used to predict the suitable crop by sensing various parameters of soil, and also parameters related to atmosphere. Parameters like area of crop production, temperature and pH scale are considered for the predictions of crop yield.Achieving maximum crop yield at minimum cost is one of the goals of agricultural production. Early detection and management of problems associated with crop yield indicators can help increase yield and subsequent profit. By influencing regional weather patterns, large-scale meteorological phenomena can have a significant impact on agricultural production. Predictions could be used by crop managers to minimize losses when unfavourable conditions may occur. Additionally, these predictions could be used to maximize crop prediction when potential exists for favourable growing conditions.  **Architecture: Architecture / Flowchart/ Block diagram / Use Case**    **PURPOSE:**  The main idea of the project is to achieve maximum crop yield at minimum cost is one of the goals of agricultural production.  Early detection and management of problems associated with crop yield indicators can help increase yield and subsequent profit.  These predictions could be used by crop managers to minimize losses when unfavorable conditions may occur**.**  **SCOPE:**  To develop a system which recommends crop and yield prediction and to suggest the crops suitable for farming.  **FUNCTIONAL REQUIREMENTS**  Input the area in Maharashtra by the farmer where farming is to be done  Check area and recommend the crop according to user specified area  Predict yield  Suggest the crop for farming  **SOFTWARE REQUIREMENTS**  **-**Operating System: Windows/Ubuntu  -Datasets Used:  Crop-wise\_State-wise\_Land holdings\_Area\_Number.xlsx  crop\_production.csv  district wise rainfall normal.csv  **EXTERNAL INTERFACES:**  **1.** Crop\_ph.csv  2. CropData.csv  3. CropRequiredTemperature.csv  4. District\_ph.csv  5. MaharashtrastateRainfall.csv  **Algorithm:**  We have divided our project in three parts:  1. Area Production:  We used Cropdata.csv dataset here. It consists of State name, District, Crop name, year, Season, Crop Area, and Production. It has 12629 entries of such data of all the districts in the state of Maharastra.  2. Temperature Rain Corelation.  We used MaharashtrastateRainfall.csv dataset here. It consists of State name, District name, Year. All the 12 months from Jan-December Annual Total rainfall.  3. pH Contribution  We used District\_ph.csv dataset here. It consists of City name, pH min ,pH max. We used Crop\_ph.csv dataset here. It consists of Crop name, pH required, pH min, range.  **Product Functions:**  In this system work, we have recommended crops to the farmers according to the area of production, temperature, and rainfall and pH value of the soil. We predict the yield of the crop and recommend farmers crop suitable for farming which will give them best results.The analysis of rainfall and temperature areawise helps us determine the most suitable range required for different crops.  Analyzing pH values of land with the above analysis of rainfall and temperature, a regression model is created to help predict which crop is most suitable in which area.  Area vs Production helps to reinforce the correctness of this model.    **Conclusion:**  **•**  The analysis of rainfall and temperature areawise helps us determine the most suitable range required for different crops.  • Analyzing pH values of land with the above analysis of rainfall and temperature, a regression model is created to help predict which crop is most suitable in which area.  • Area vs Production helps to reinforce the correctness of this model.  **LIMITATIONS:**  These existing systems consider only some of the parameters, multiple parameters are generally not considered.  The accuracy and precision has scope of improvement.  Farming is dependent on various factors therefore it is very important to train our model on the basis of multiple parameters for accurate results.  **FUTURE ENHANCEMENTS:**  Add as many parameters as possible.  Make it more User friendly as it'll be easier for the farmers to understand.  Making it more portable.  **REFERENCES:**  **[**1] Aggarwal Sachin (2001). Application of Neural Network to Forecast Air Quality Index. Thesis submitted in partial fulfillment of requirements for a degree in Bachelor of Technology, April 2001.  [2] B. J I ET AL Artificial neural networks for rice yield prediction in mountainous regions. Journal of Agricultural Science (2007), 145, 249– 261.    [3] B.A. Smith et al,.Artificial Neural Networks for Automated Yearround Temperature Prediction. Computers and Electronics in Agriculture 68 (2009) 52–6.    [4] Cheng, B. and Titterington, D. M. (1994). Neural networks: A review    from a statistical perspective Statistical Science, 9: 2-54.    [5] D.L. 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