Stock Management,Profit & Loss prediction

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Problem Statement :

The aim of the application is to choose an accurate vendor for some particularly specified product.

The growth of any organization depends on the profit gained on the product and this profit is gained only if the best vendors are chosen.

If there is no on time delivery of product from the vendor or if there is supply damages and if the purchase price of the product is expensive then there occurs a huge loss to the organization.

Introduction

- Stock Management, Profit and Loss prediction application makes use of machine learning algorithms to predict the good vendors.
- Algorithms such as SVM (Support vector machine) and SKfuzzy is used in the application. Interface takes the user inputs such as product id ,quantity, supplier id, tax, price.
- Finally, SVM it is going to predict whether we need to go with that vendor or not.
- SKfuzzy algorithm is an approach to predict the comparison between the vendors within the stock.
- Performance is based on the above parameters and the profits percentage for that supplier is calculated. The products yielding profit is shown in category by applying statistical analysis.

Hardware Requirements

Laptop/Personal Computer

- Processor : Intel Core i3-3110M
- RAM : 4GB or above

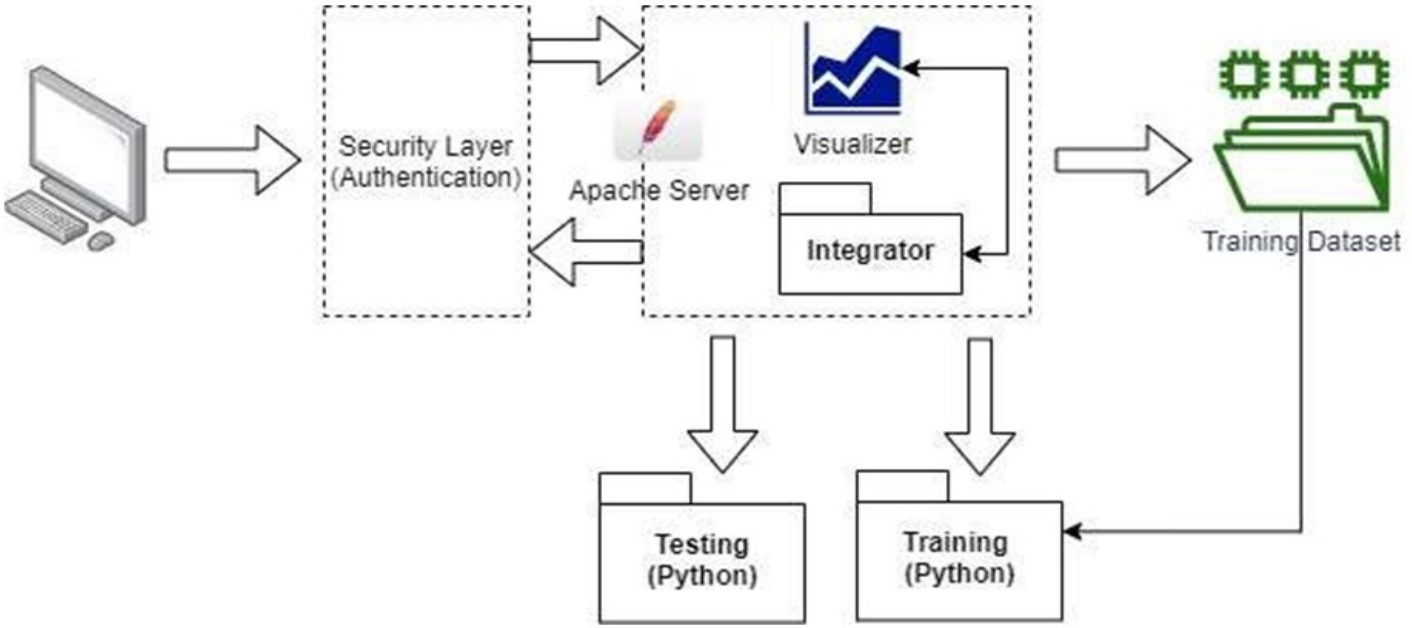
Software Requirements

- Operating System : Windows 7 or above
- Web Interface (Frontend) : HTML & CSS
- Programming Language : Python
- Cross platform web server : Flask

Design

Abstract Diagram

Architectural Diagram



Algorithm

1. Signup page to the new application user

Begin

If (Name,Email) **Then**
If (Length of password > 4) **Then**
Signup()
Display "Registration Successful"
Else
Display "Authentication failed. The given password is invalid". [Password should be at least 6 characters.]"
EndIf
Else
Display "Enter all the details"
EndIf

End

2. Login page to the Application user

Begin

If (Name and Password) **Then**
If (Name and Password is valid) **Then**

Login()
Display "Login Successful"
Else
Display "Authentication Failed"
EndIf
Else
Display "Enter all the required details"
EndIf

End

3. Prediction page to predict the vendor for a product

Begin

If (Product_id, Quantity, Price , Supplier_id ,Tax) **Then**
    Predict() [prediction based on profit from that vendor] **Then**
    If (The products yields profit with that vendor) **Then**
        Display "good choice"
    Else
        Display "not good choice and take up alternative measures"
    EndIf
Else
    Display "Enter all the required fields"
EndIf

End

Test cases :

Signup page for the New application user

Table 1: Test case for Signup

SI.No	Test Cases	Expected output	Observed output	Result
1.	When Name,Email, Password entered is correct	Home page	Home page is displayed	Pass
2.	When name is not entered	Display "Enter Name"	"Enter Name" is displayed	Pass
3.	When email is not entered	Display "Enter email"	"Enter Email" is displayed	Pass
4.	When Password is not entered	Display "Enter password"	"Enter password" is displayed	Pass
5.	When password is less than 4 characters	Display "Minimum 4 characters required"	"Minimum 4 characters required" is displayed	Pass

Login page for the application user

Table 2: Test case for Login

SI.No	Test Cases	Expected outcomes	Observed output	Result
1.	When name and password entered are correct	Display Home page	Home page is displayed	Pass
2.	When name entered is incorrect	Display "Invalid name"	"Invalid name" is displayed	Pass
3.	When password entered is incorrect	Display "Invalid password	"Invalid password" is displayed	Pass

Prediction page to predict the vendor for the product

Table 3: Test case for Prediction

SI. No	Test Cases	Expected Output	Observed Output	Result
1.	Enter product_number, tax Quantity,price, supplier_id	Go ahead & looks goods	Display's "Its good and go ahead"	Pass
2.	Enter product_number,tax Quantity,price, supplier_id	Not a good choice	Display's "It's not good to go & take alternatives"	Pass
3.	If product_number & product price does not match	Not a good choice	Display's "It's not good to go & take alternatives"	Pass
4.	If Quantity is invalid	Not a good choice	Display's "It's not good to go & take alternatives"	Pass
5.	If product number is invalid	Not a good choice	Display's "It's not good to go & take alternatives"	Pass
6.	If supplied_id entered is invalid	Not a good choice	Display's "It's not good to go & take alternatives"	Pass
7.	If Tax is not a valid number	Not a good choice	Display's "It's not good to go & take alternatives"	Pass

Analysis

- Need of improving available dataset to fit the training model..
- To use a proper database inorder to customize the time complexity .
- Need of using relevent technology to eliminate time complexity due to large amount of data in the front end.
- Eliminating the redundant data before it is used by the training model for processed bybtraining rules.
- Improve the training rule to get an most accurate result for a fair evaluation of performance of suppliers, product, produxt category.

Conclusion

- Able to map the exact intelligence with the best understanding of our need to process the application and the algorithm.
- Able to process the application with the different algoritic intelligence and decide the best one that fits
- Used micro database system like flask and learning the use of it.
- Made the best and the most use of the dataeset by clustering and trying different combination of it.
- Reflected the aim of the project theough the front end. Making it user readable and understandable using different graph representation's.

References

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[6]. N. Yang, X. Jin, T. Su and J. Kong, "Multisource Data Analysis for Stock Prediction," *2018 10th International Conference on Modelling, Identification and Control (ICMIC),* Guiyang, 2018

Screenshots :

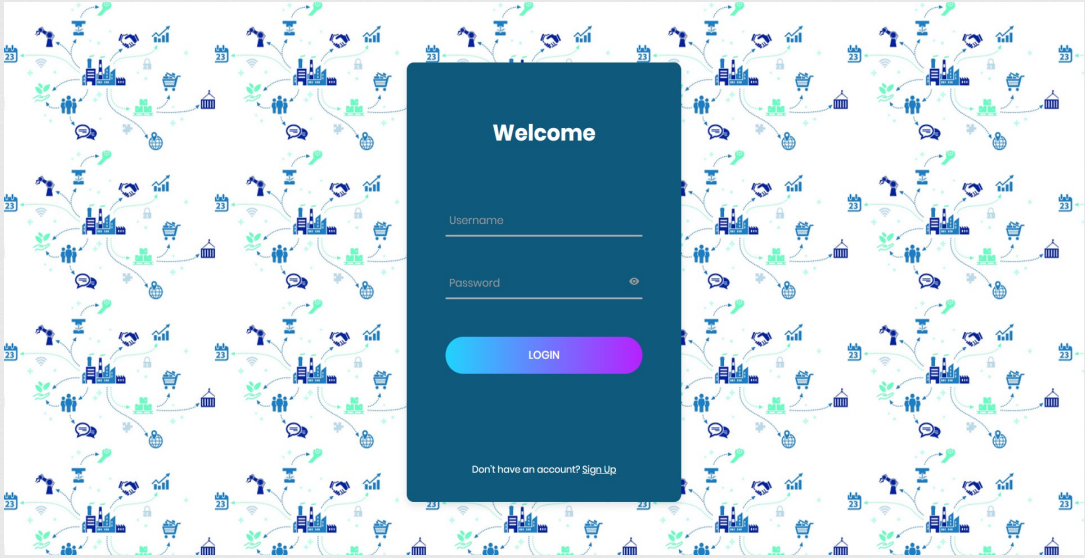

Figure 1. Login page

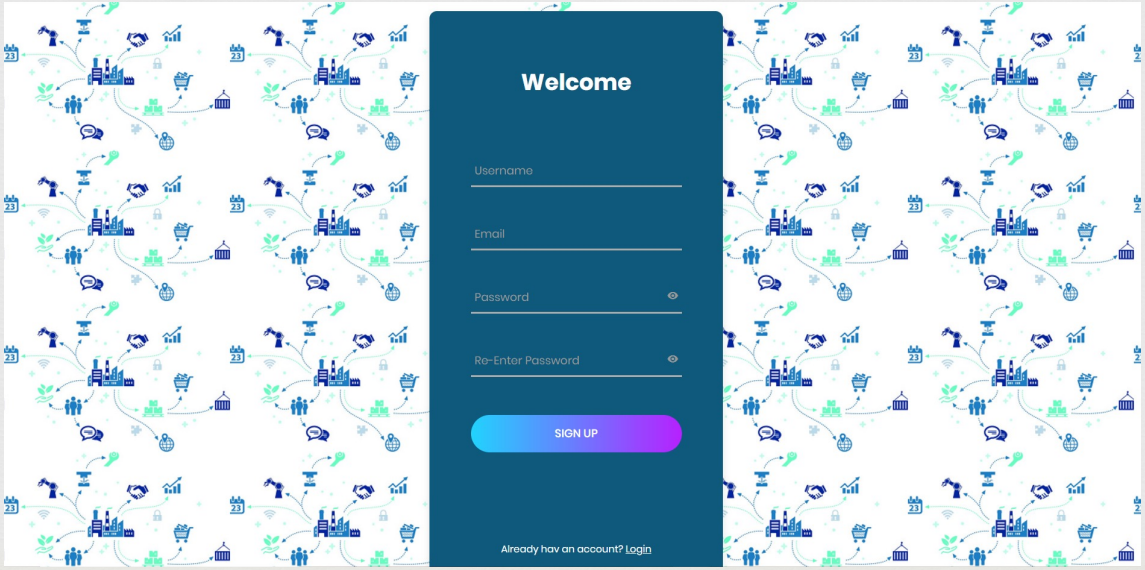

Figure 2. Signup page

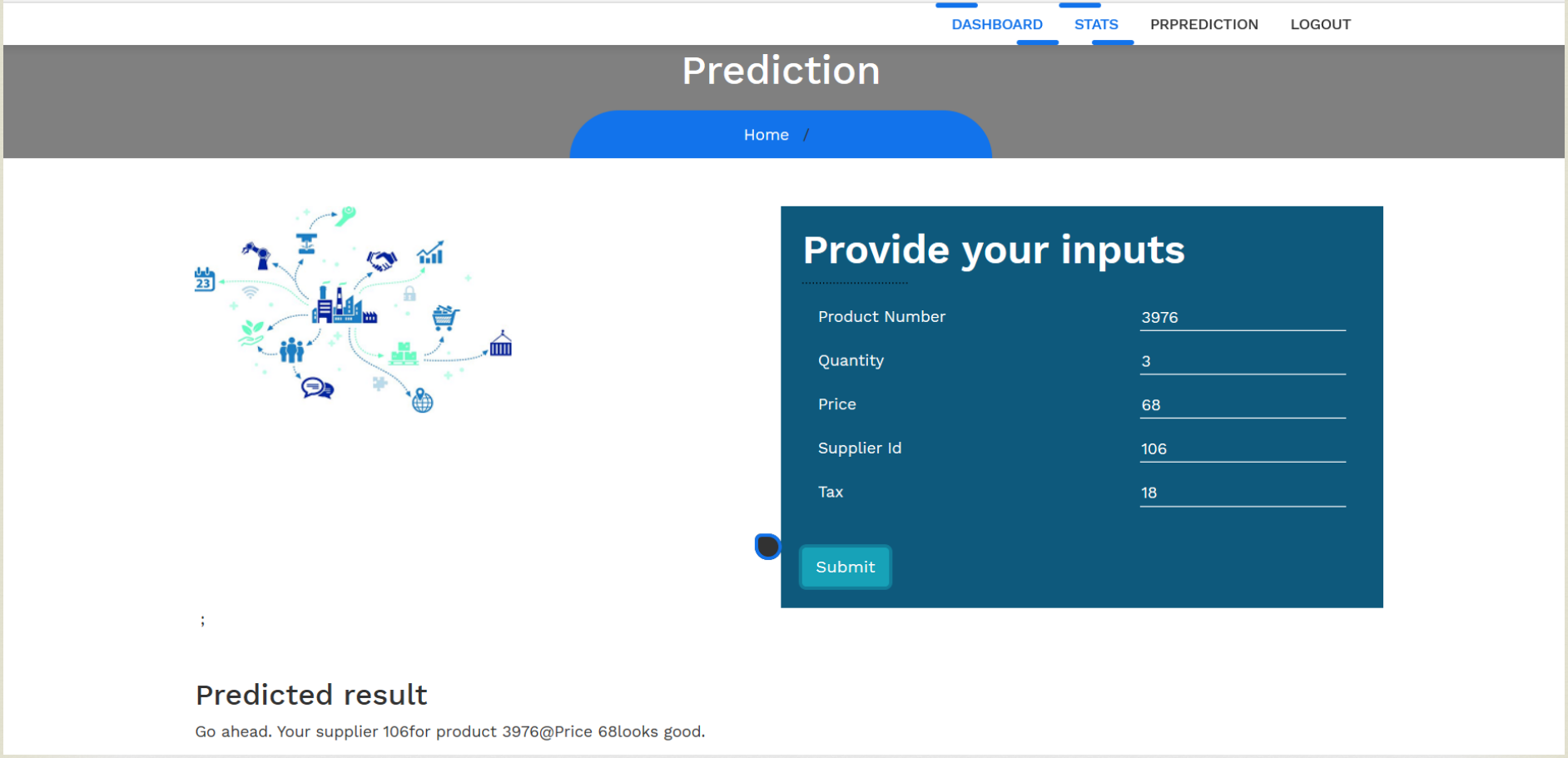

Figure 3. Vendor Prediction page for a good choice

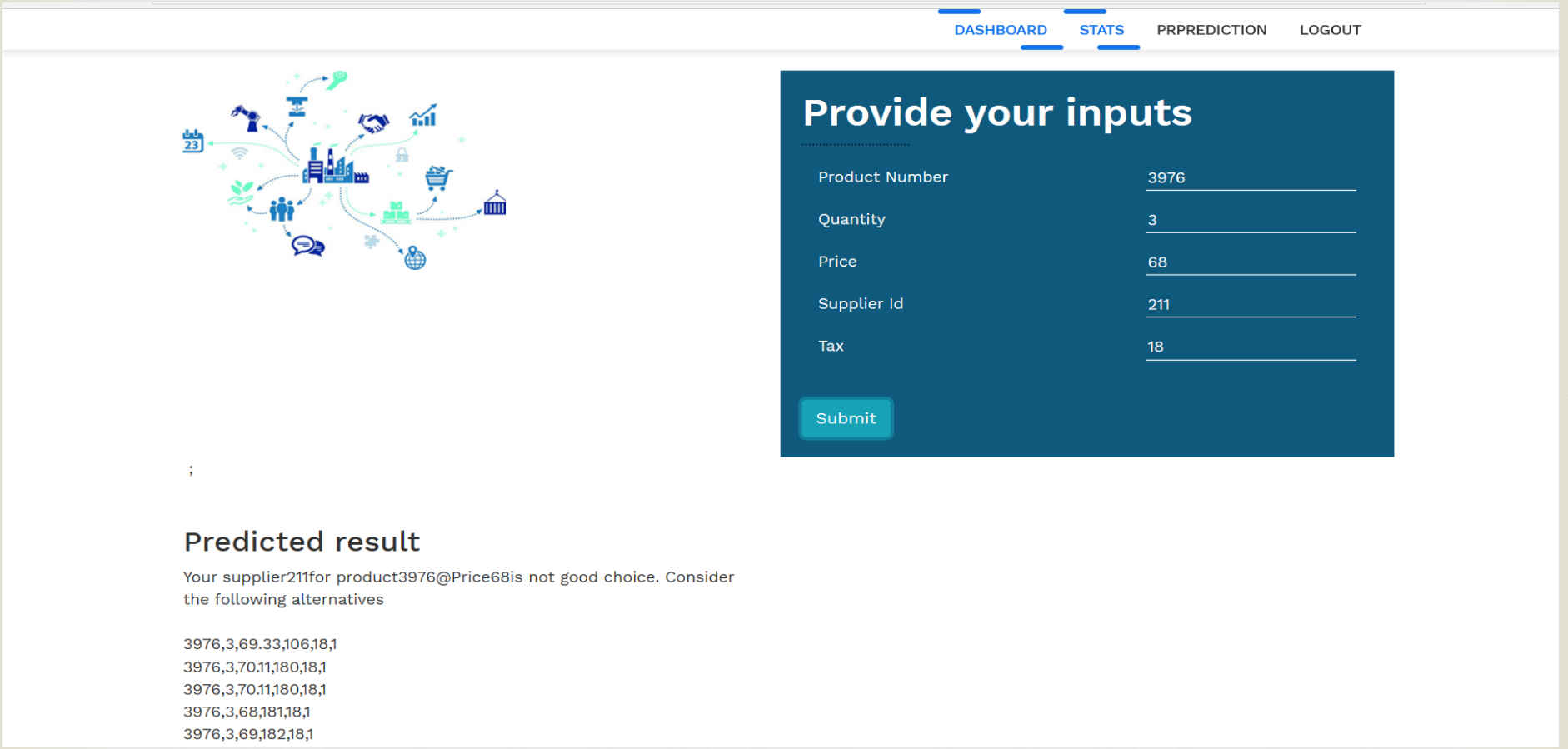

Figure 4. Vendor Prediction page for not a good choice

Figure 5. Page displaying the top performers

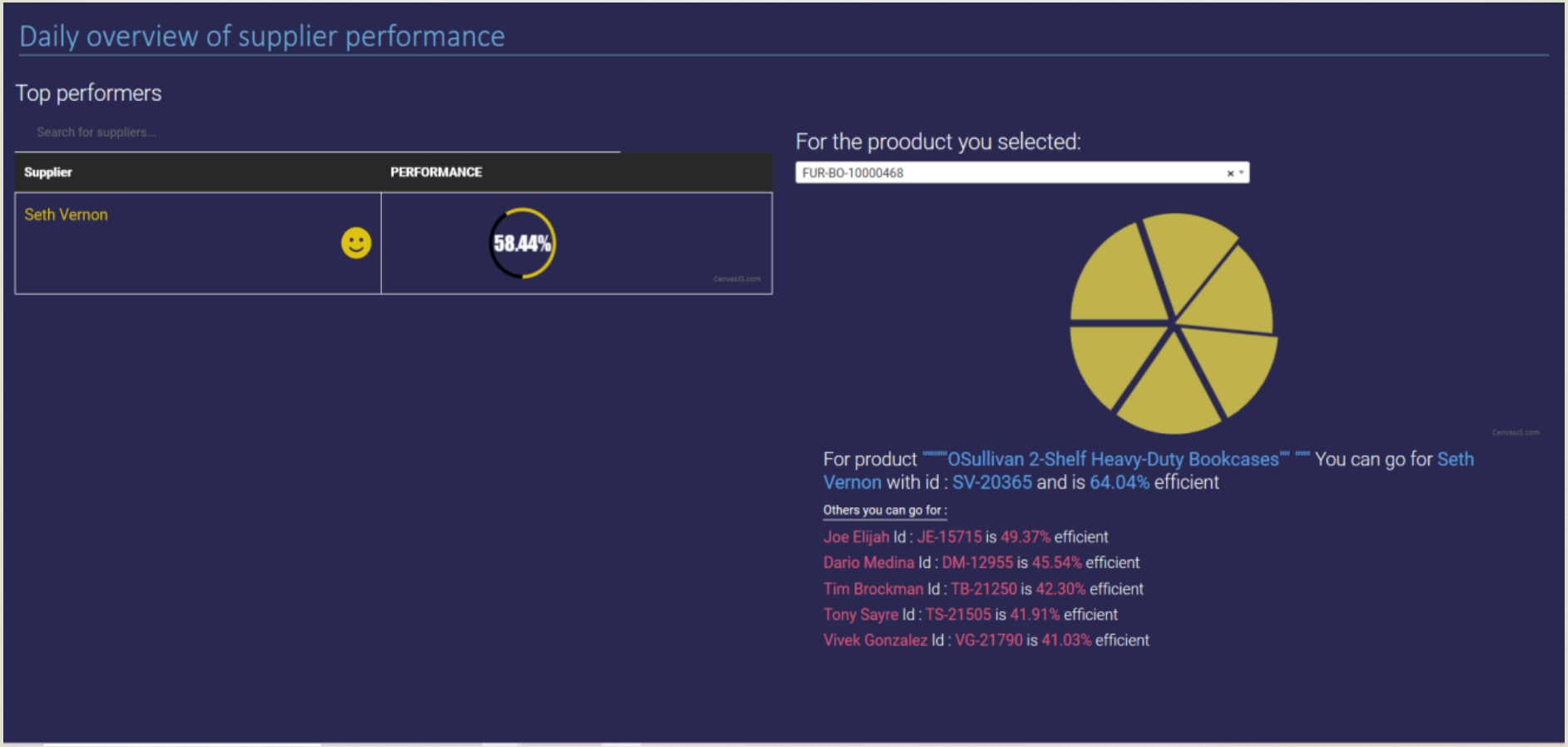

Figure 6. Suggest supplier to the product.

Figure 7. Statistical analysis of the stock by quantity by date,sales by date,profit by date and profit by category