International Journal of Research in Advent Technology, Vol.7, No.5S, May 2019
E-ISSN: 2321-9637
Available online at www.ijrat.org

Outdoor And Terrace Gardening Shopping System Using Association Mining Rule

[1]Dr. D.Kalpanadevi, [2] S. Indhu
[1]Assistant Professor, [2] Third Year MCA
[1,2]Department of Computer Applications
Ayya Nadar Janaki Ammal College Sivakasi, Tamil Nadu, India
kalpanapani@gmail.com

Abstract— An objective of the paper is to develop website is to fix an order for a home, school, college and other organization in related to construct the garden. The outer spaces can be filled with decorative plants, fountain, lighting and decoration on garden. The details related to garden and their expenses can be maintained by using this webpage. The orders are getting recorded from the customer and as per the needs of the customer; the garden can be viewed in a panorama viewer. The gallery of plant, water fountain and garden furniture's will be viewed to the user which helps to select the needed items. The paper can be focuses on association Rule mining can used to identify the frequent items on terrace gardening are predicted and show during the time of order placing which helps to increase the sales.

Keywords— System Usability Scale (SUS), Android App, Measure Product Quality

1.INTRODUCTION

The webpage for outdoor garden shopping helps both the admin in an effective manner to sell the garden item directly to the user. As per the view, the user can make use of the webpage to fix the order by viewing the items as per the category [1] Beginning PHP and MySQL: From Novice To Professional written By W. Jason Gilmore.[2] PHP Solutions: Dynamic Web Design Made Easy written by David Powers.[3] Learning PHP, MySQL, and JavaScript: A Step-by-Step Guide to Creating Dynamic Websites written by Robin Nixon.[4] Professional PHP6 written by Ed Lecky-Thompson, Steven D. Nowicki, and Thomas Myer. The gallery of plant, water fountain and garden furniture's will be viewed to the user which helps to select the needed items. The selected items are added to the cart and after proceeding, the bill for the order generated and payment can be carried out through online or cash on delivery.

2. ORIGIN OF PROBLEM

In existing system, there won't be any separate webpage for garden item shopping. The user can't predict the needed plant as per the climate and area in house or office. The Garden items are viewed as a category and user can't view the item in a large size. The existing is not user friendly, if the customer doesn't know to work in internet, they can't make use of the corresponding website to make an online purchase, therefore if the customer well in using internet can only make purchase of the garden items. The webpage won't view in fulfill manner during the time of using in mobile. Garden items are purchased by all categories people, therefore as per the range the category, the garden items can't be executed.

3. SCOPE OF RESEARCH

In proposed system, the user can view the list of items in related to plant, fountain, furniture and lighting as per the category selected. The details such as type, prize, description and stock status will be viewed by the user which helps the user to make an order in a simpler manner. All categories of person can make use of the webpage in an effective manner to fix garden item order. To view the webpage in any device, Bootstrap concept was implemented thus the webpage can be viewed in a responsive manner. The panorama tool helps to view the gallery in 360 degree thus as per the need, the user can fix an order. Association Rule mining can used to identify the frequent items on terrace gardening are predicted and show during the time of order placing which helps to increase the sales.

4.DATA FLOW DIAGRAM

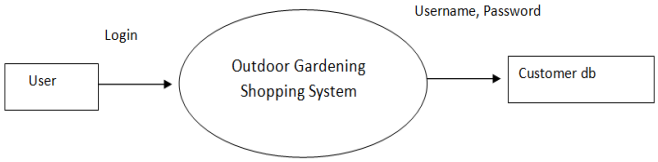

Figure 1 Level 0 diagram

In figure 1 represents, User role represent as the user can login into the outdoor gardening shopping system. The username and password is correct then go to the main page of website otherwise not show them.

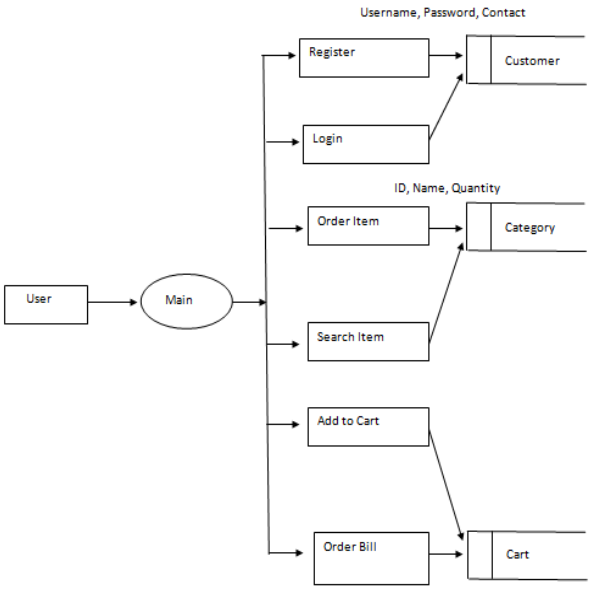

Figure 2 Level 1 diagram

In figure 2 represents, User process represent as the user can login into the project then to user can view the products for your garden and we can place their order. The order process can be carried on online payment ways.

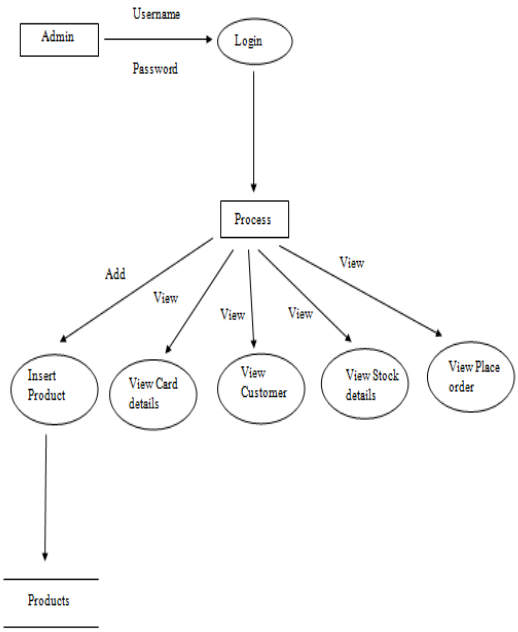

Figure 3 Admin Process

Figure 3 represents, admin process represent as the admin can login into our page then the insert new product in our website. View card related details or customer details or stock details. The admin can view the order placed details.

5.IMPLEMENTATION - ASSOCIATION RULE MINING ALGORITHM

In this paper, association rule mining algorithm describes the data relationship between the data items and finding the frequent items. From the frequent item set, can generate association rules. Association rules can be represented as x->y is interpreted as "database tuples that's satisfying the condition in x also likely to satisfy the condition in y. In this research, Apriori algorithm is used for finding the frequent pattern mining [5] Agrawal, R., Imielinski, T., and Swami, A. N. 1993. Mining association rules between sets of items in large databases. In Proceedings of the 1993 ACM SIGMOD International Conference on Management of Data, 207-216. [6] Brin, S., Motwani, R. and Silverstein, C., "Beyond Market Baskets: Generalizing Association Rules to Correlations," Proc. ACM SIGMOD Conf., pp. 265-276, May 1997. [7] Han, J. and Pei, J. 2000. Mining frequent patterns by pattern-growth: methodology and implications. ACM SIGKDD Explorations Newsletter 2, 2, 14-20. [8]] Parthasarathy, S., Efficient Progressive Sampling for Association Rules. ICDM 2002: 354-361. [9] Tien Dung Do, Siu Cheung Hui, Alvis Fong, Mining Frequent Itemsets with CategoryBased Constraints, Lecture Notes in Computer Science, Volume 2843, 2003, pp. 76 - 86 [10] Liu, B. Hsu, W., Ma, Y., "Mining Association Rules with Multiple Minimum Supports," Proc. Knowledge Discovery and Data Mining Conf., pp. 337-341, Aug. 1999..

Find The Similar Products:

Steps To Perform Apriori Algorithm

- Scan the transaction database to get the support 's' each l(large)-item set, compare s with minimum support and get support of l-item sets.
- Use join to generate the set of candidates k-item set. Use apriori property to prune the unfrequented k-item sets from this set.
- Scan the transaction database to get the support 's' of each candidate k-item set in the given set, compare 's' with minimum support and a set of frequent k-item set.
- If the candidate set is NULL, for each frequent item set l, generates non-empty subsets of l.
- For every non-empty subsets of l, output the rule "s => (l-s)" if confidence of the rule "s => (l-s)" minimum confidence.
- If the candidate set is not NULL, go to step 2.

Table1 Training Data for finding frequent item set

Transaction Id	**List of Items**
T1	Bed, Furniture, Fruit
T2	Furniture, Flower
T3	Furniture, Fountain
T4	Bed, Furniture, Flower
T5	Bed, Fountain
T6	Furniture, Fountain
T7	Bed, Fountain
T8	Bed, Furniture, Fountain, Fruit
T9	Bed, Furniture, Fountain

Table 1 represents the transactions which contains related items purchased by various users.

Let us assume Min Support =2% and Min Confidence=50%
The training data can be contain no of transaction |D|=9
The training data can be contain no of items=5

Table 2 Frequent item set for candidate

C1

Itemset
Bed
Furniture
Fountain
Flower
Fruit

C1

Itemset	Support count
Bed	**6**
Furniture	**7**
Fountain	**6**
Flower	**2**
Fruit	**2**

L1

Frequent Itemset
Bed
Furniture
Fountain
Flower
Fruit

Table 2 represents, the frequent item set for candidate set 1 it denote as C1. Let us L1 is assuming as frequent item for candidate item set 1. Then we can perform the joining operation.

Joining:

C2=L1 & L1
={Bed}{Furniture}{Fountain}{Flower}{Fruit}
Join
{Bed}{Furniture}{Fountain}{Flower}{Fruit}

⇨ {{Bed, Furniture} {Bed, Fountain} {Bed, Flower}{Bed, Fruit}{ Furniture, Fountain}{ Furniture, Flower}{ Furniture, Fruit}{ Fountain, Flower}{ Fountain, Fruit}{ Flower, Fruit}}

After joining operation we can perform pruning operation for find the both or frequent or not

Pruning:
{Bed, Furniture} – Each set are Frequent
{Bed, Fountain}– Each set are Frequent
{Bed, Flower}– Each set are Frequent
{Bed, Fruit}– Each set are Frequent
{Furniture, Fountain}– Each set are Frequent
{Furniture, Flower}– Each set are Frequent
{Furniture, Fruit}– Each set are Frequent
{Fountain, Flower}– Each set are Frequent
{Fountain, Fruit}– Each set are Frequent
{Flower, Fruit}– Each set are Frequent

After pruning we can get the candidate items set 2 it is denoted as C2

Table 3 Frequent item set for candidate

C2

Itemset
{Bed, Furniture}
{Bed, Fountain}
{Bed, Flower}
{Bed, Fruit}
{Furniture, Fountain}
{Furniture, Flower}
{Furniture, Fruit}
{Fountain, Flower}
{Fountain, Fruit}
{ Flower, Fruit}

L2

C2

Itemset	Support count	Frequent Itemset
{Bed, Furniture}	4	{Bed, Furniture}
{Bed, Fountain}	4	{Bed, Fountain}
{Bed, Flower}	1	
{Bed, Fruit}	2	{Bed, Fruit}
{Furniture, Fountain}	4	{Furniture, Fountain}
{Furniture, Flower}	2	{Furniture, Flower}
{Furniture, Fruit}	2	{Furniture, Fruit}
{Fountain, Flower}	-	
{Fountain, Fruit}	1	
{ Flower, Fruit}	-	

Table 3 represents, the frequent item set for candidate set 2 it denote as C2.L2 is assuming as frequent item for candidate item set 2.Then we can perform the joining operation.

Joining:
C3=l2 & l2
{{Bed, Furniture}{Bed, Fountain}{Bed, Fruit}{Furniture, Fountain} {Furniture, Flower}{Furniture, Fruit}}
Join
{{Bed, Furniture}{Bed, Fountain}{Bed, Fruit}{Furniture, Fountain} {Furniture, Flower}{Furniture, Fruit}}

⇨ {{Bed, Furniture, Fountain}{Bed, Furniture, Fruit}{Bed, Fountain, Fruit}{Furniture, Fountain, Flower}{ Furniture, Fountain, Fruit}{ Furniture, Flower, Fruit}}

After joining operation we can perform pruning operation for find the both or frequent or not

Pruning:
{Bed, Furniture, Fountain} -> {Bed, Furniture}{Bed, Fountain}
{Furniture, Fountain} - Each set are Frequent
{Bed, Furniture, Fruit} -> {Bed, Furniture} {Bed, Fruit}
{Furniture, Fruit} - Each set are Frequent
{Bed, Fountain, Fruit} -> {Bed, Fountain} {Bed, Fruit}
{Fountain, Fruit} - Each set are Frequent
{Furniture, Fountain, Flower}-> {Furniture, Fountain}
{Furniture, Flower}{Fountain, Flower} No Frequent item
{Furniture, Fountain, Fruit}->
{Furniture, Fountain}{Furniture, Fruit}{Fountain, Fruit}
No Frequent item
{Furniture, Flower, Fruit}-> {Fountain, Flower} {Furinture, Fruit} {Flower, Fruit} No Frequent item

After pruning we can get the candidate items set 3 it is denoted as C3

Table 4 Frequent item set for candidate

C3

Itemset
{Bed, Furniture, Fountain}
{Bed, Furniture, Fruit}

C3

Itemset	Support Count

L3

Frequent Itemset

{Bed, Furniture, Fountain}	**2**	{Bed, Furniture, Fountain}
{Bed, Furniture, Fruit}	**2**	{Bed, Furniture, Fruit}

Table4, the frequent item set for candidate set 3 it denote as C3.L3 is assuming as frequent item for candidate item set 3.Then we can perform the joining operation.

Joining:

C4=l3 & l3
{Bed, Furniture, Fountain}{Bed, Furniture, Fruit}
Join
{Bed, Furniture, Fountain}{Bed, Furniture, Fruit}
⇨ {Bed, Furniture, Fountain, Fruit}

After joining operation we can perform pruning operation for find the both or frequent or not

Pruning:

= {Bed, Furniture, Fountain, Fruit} -> {{Bed, Furniture, Fountain}
{Bed, Furniture, Fruit}{Furniture, Fountain, Fruit}
{Bed, Fountain, Fruit}}
{Bed, Furniture, Fountain} -> Each set are Frequent
{Bed, Furniture, Fruit} -> Each set are Frequent
{Furniture, Fountain, Fruit} -> Each set are Frequent
{Bed, Fountain, Fruit} -> Each set are Frequent

C4=>Null

Finally we can get the null set because no candidate set is found.
We can get subset frequent item set for calculating the association mining rule.

Frequent Set:

L= {Bed, Furniture, Fountain}{Bed, Furinture, Fruit}

Generating association rule for frequent item set:

1, l= {Bed, Furniture, Fountain}

⇨ {Bed}{Furinture}{Fountain}{Bed,Furinture}{Bed,Fountain}{Furniture, Fountain}

1. {Bed}=>{Furniture, Fountain}

$$\text{Confidence} = \frac{Sc\{Bed, Furniture, Fountain\}}{Sc\{Bed\}}$$

=2/6 X 100=33.3%

1. {Fountain}=>{Bed, Furniture}

$$\text{Confidence} = \frac{Sc\{Bed, Furniture, Fountain\}}{Sc\{Bed\}}$$

=2/6 X 100=33.3%

2. {Furniture}=>{Bed,Fountain}

$$\text{Confidence} = \frac{Sc\{Bed, Furniture, Fountain\}}{Sc\{Bed\}}$$

=2/7 X 100=28.57%

3. {Bed, Furniture}=>{Fountain}

$$\text{Confidence} = \frac{Sc\{Bed, Furniture, Fountain\}}{Sc\{Bed, furinture\}}$$

=2/4 X 100=50%

4. {Bed, Fountain}=>{Furniture}

$$\text{Confidence} = \frac{Sc\{Bed, Furniture, Fountain\}}{Sc\{Bed, furinture\}}$$

=2/4 X 100=50%

5. {Furniture, Fountain}=>{Bed}

$$\text{Confidence} = \frac{Sc\{Bed, Furniture, Fountain\}}{Sc\{Furinture, Fountain\}}$$

=2/4 X 100=50%

2, l= {Bed, Furniture, Fruit}

=> {Bed} {Furniture} {Fruit} {Bed, Furniture} {Bed, Fruit}{furniture, fruit}

1. {Bed} => {Furniture, Fruit}

$$\text{Confidence} = \frac{Sc\{Bed, Furniture, Fruit\}}{Sc\{Bed\}}$$

=2/6 X 100=33.5%

2. {Furniture} => {{Bed, Fruit}

$$\text{Confidence} = \frac{Sc\{Bed, Furniture, Fruit\}}{Sc\{Bed\}}$$

=2/7 X 100=28.57%

3. {Fruit} => {Bed, Furniture}

$$\text{Confidence} = \frac{Sc\{Bed, Furniture, Fruit\}}{Sc\{Fruit\}}$$

=2/2 X 100=100%

4. {Bed, Furniture} =>{Fruit}

$$\text{Confidence} = \frac{Sc\{Bed, Furniture, Fruit\}}{Sc\{Bed, Furniture\}}$$

=2/4 X 100=50%

5. {Bed, Fruit} => {Furniture}

$$\text{Confidence} = \frac{Sc\{Bed, Furniture, Fruit\}}{Sc\{Bed, Fruit\}}$$

=2/2 X 100=100%

6. {Furniture, Fruit} => {Bed}

$$\text{Confidence} = \frac{Sc\{Bed, Furniture, Fruit\}}{Sc\{Furniture, Fruit\}}$$

=2/2 X 100=100%

The minimum confidence says 50% for {Bed, Furniture, Fountain}is{Bed, Furniture => Fountain }{Bed, Fountain => Furniture}& {Furniture, Fountain=>Bed}

The minimum confidence says 50% for {Bed, Furniture, Fruit} is {Bed, Furniture=>Fruit} {Bed, Fruit=> Furniture} {Furniture, fruit=>Bed} {Fruit=>Bed, Furniture}

6. EXPERIMENT AND RESULT ANALYSIS

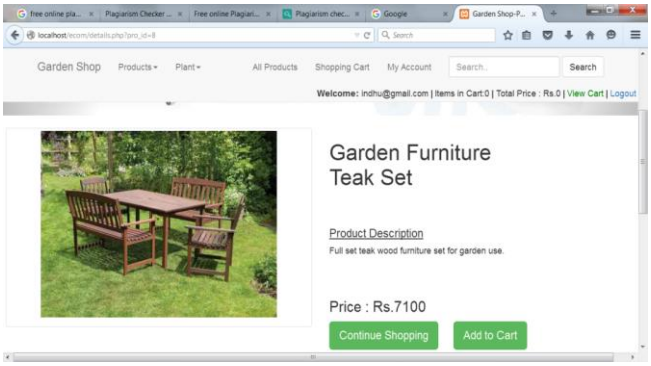

Figure 1 View product

Figure 1 represent as the user can view the product. It contains product name, description, and price, continue shopping and add to cart.

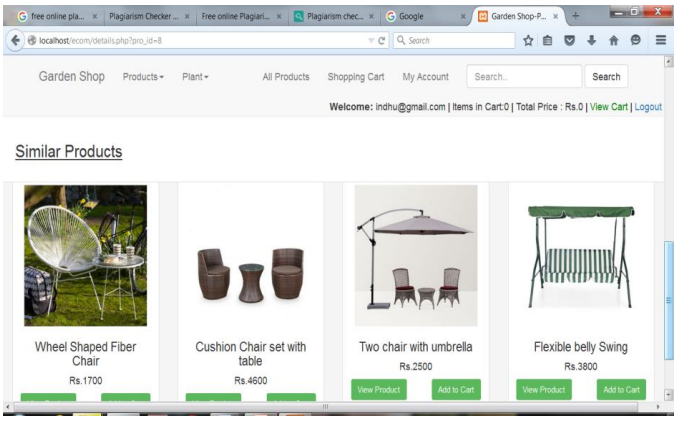

Figure 2 Similar Products

Figure 2 is representing as if user click the view product, the similar products are display based on the association rule mining algorithm successfully.

7. CONCLUSION

Thus all categories related plants, products are purchased from a single webpage, which help the people to retrieve the needed plant details in simpler way without any further searches. Everyone can get knowledge of having garden and the gallery view helps the user to get an idea in setting the garden in home or office in an interactive manner. The panorama helps the user to view the garden in 360 degree, thus the overall view can be known by the user in an attractive manner. Finally, Association rule mining algorithm can be implemented for finding the frequent itemset of related products.

REFERENCES

[1] Beginning PHP and MySQL: From Novice To Professional written By W. Jason Gilmore.
[2] PHP Solutions: Dynamic Web Design Made Easy written by David Powers.
[3] Learning PHP, MySQL, and JavaScript: A Step-by-Step Guide to Creating Dynamic Websites written by Robin Nixon.
[4] Professional PHP6 written by Ed Lecky-Thompson, Steven D. Nowicki, and Thomas Myer.
[5] Agrawal, R., Imielinski, T., and Swami, A. N. 1993. Mining association rules between sets of items in large databases. In Proceedings of the 1993 ACM SIGMOD International Conference on Management of Data, 207-216.
[6] Brin, S., Motwani, R. and Silverstein, C., ”Beyond Market Baskets: Generalizing Association Rules to Correlations,” Proc. ACM SIGMOD Conf., pp. 265-276, May 1997.
[7] Han, J. and Pei, J. 2000. Mining frequent patterns by pattern-growth: methodology and implications. ACM SIGKDD Explorations Newsletter 2, 2, 14-20.
[8] Parthasarathy, S., Efficient Progressive Sampling for Association Rules. ICDM 2002: 354-361.
[9] Tien Dung Do, Siu Cheung Hui, Alvis Fong, Mining Frequent Itemsets with CategoryBased Constraints, Lecture Notes in Computer Science, Volume 2843, 2003, pp. 76 - 86
[10] Liu, B. Hsu, W., Ma, Y., ”Mining Association Rules with Multiple Minimum Supports,” Proc. Knowledge Discovery and Data Mining Conf., pp. 337-341, Aug. 1999.