Perturbation method For Effective Data Privacy In Data Mining

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Outline

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Literature survey
Proposed System
Architecture
System Design
Algorithms
Advantages

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Introduction

- Data mining technology has been developed with the goal of providing tools for automatically and intelligently transforming large amount of data in knowledge relevant to users.
- knowledge discovery process, however, can also return sensitive information about individuals, compromising the individuals right to privacy.
- For this reason, several data mining techniques, incorporating privacy protection mechanisms, have been developed based on different approaches.

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Literature survey

- The typical additive reconstruction technique is column-based additive randomization.
- This type of techniques relies on the facts that column-based value distortion can be applied to reconstruct some sensitive columns.
- Some existing techniques addresses the problem of building a decision tree classifier in which the values of individual records have been perturbed using randomization method.

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Proposed System

- The proposed approach, aim to achieved better result for privacy on database than existing system.
- Proposed algorithm perturbs the data by normalization, average and multiplying a noise.
- The Proposed approach uses value distortion method for data perturbation.

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Architecture

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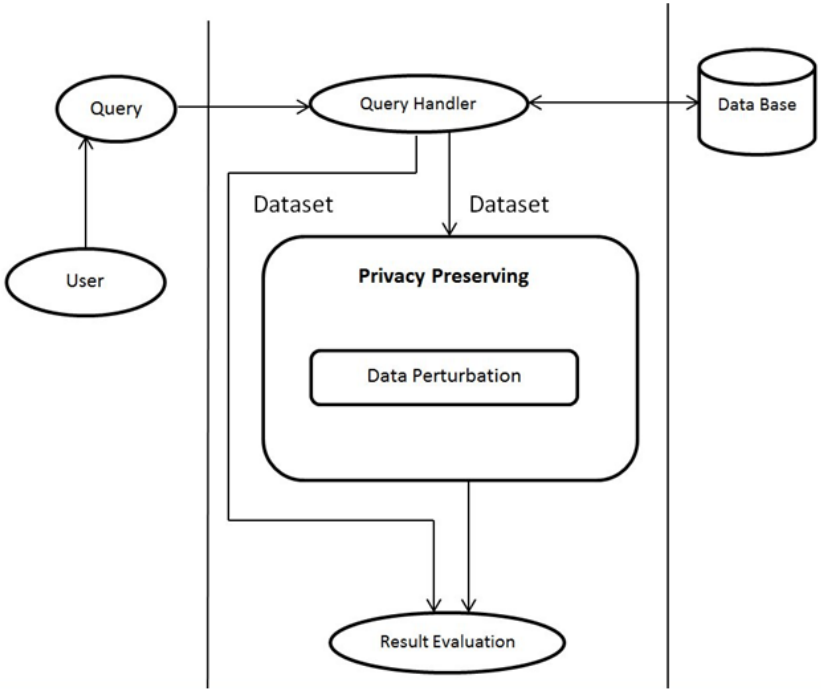

Fig.System architecture

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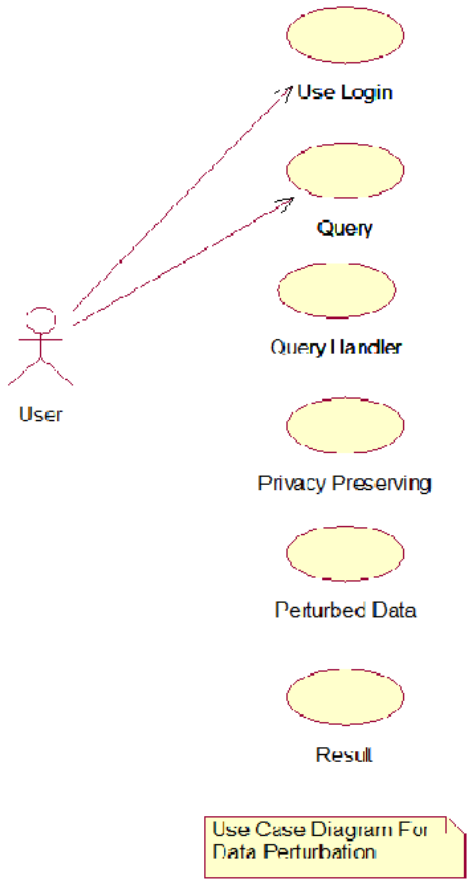
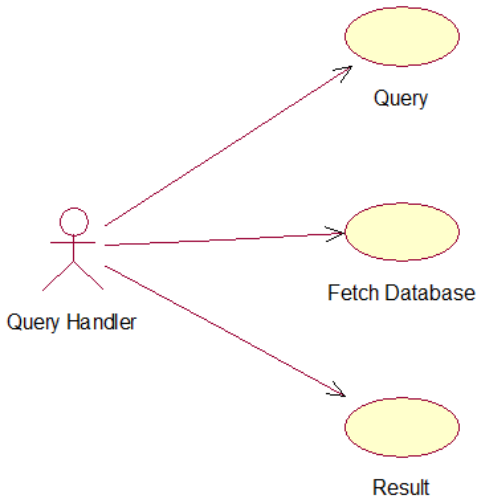
System Design



Use Case Diagram

System Design



Use Case Diagram

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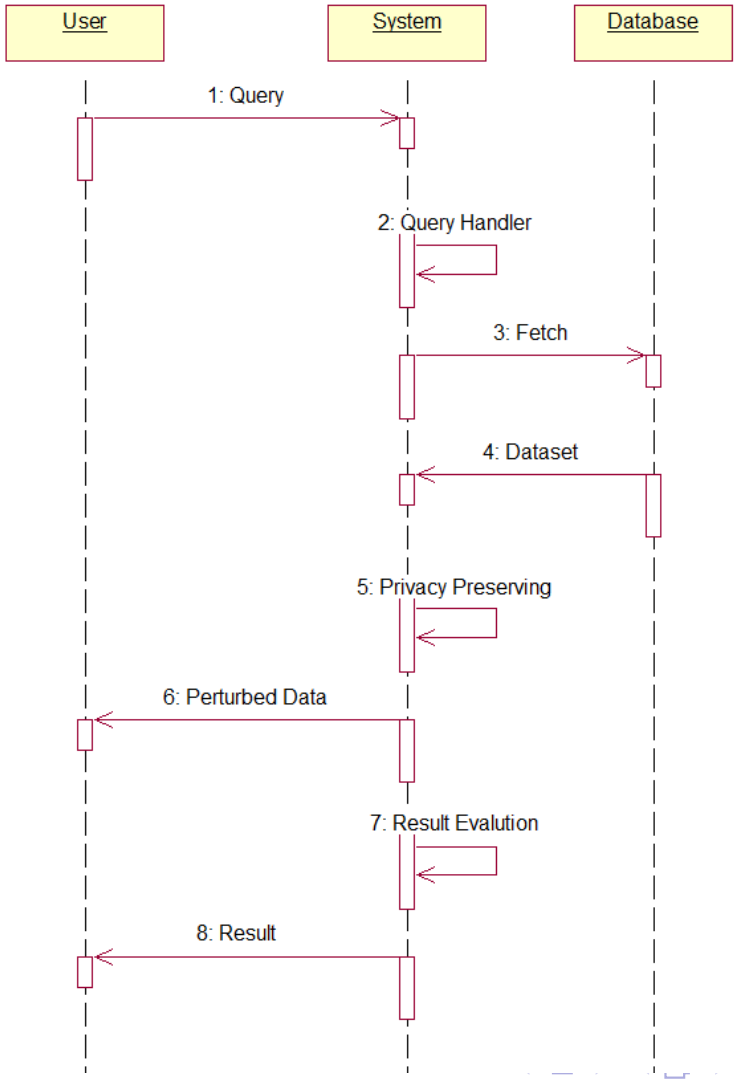

System Design

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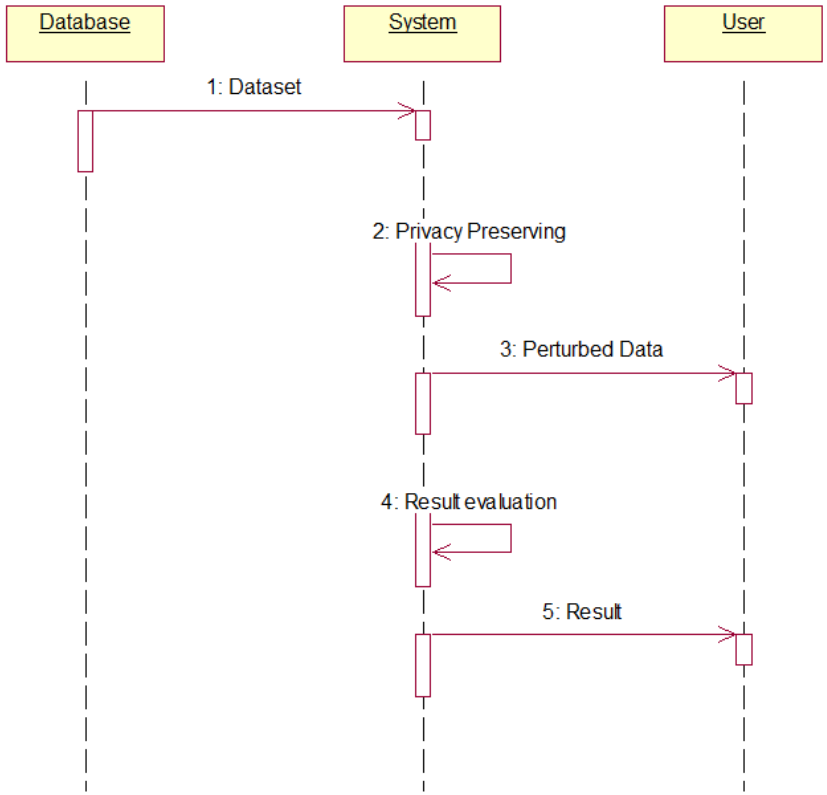

Sequence diagram

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1.Algorithm

Initialize variable i,j,mean,count=0,n,value
For value of i=1 to 10
Normalized Value=mean-i/i
i=i+Normalized value
end for
count++
Check if (count==1) Then
average=average(i)
For value of j=1 to n
value=i*j
perturbed Data=Value+Sensitive attribute
end for
Check if(count==1) Then
reset i=1
end

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Advantages

- Provide summary statistical information without disclosing individuals confidential data.
- Data loss will be minimized.
- The proposed mechanism will give high performances and low error rate compared with existing methods.

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Disadvantages

- Time consuming.
- Complex to understand.

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Conclusion

- Proposed approach focused on data perturbation by randomization noise addition to preserve privacy of sensitive attributes. Proposed approach tried to keep statistical relationship among the tuple attributes intact. We can predict that Results show fairly good level of privacy with reasonable accuracy in almost all test cases. Privacy of original data after applying perturbation has been quantified using misclassification error.

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Thank You...