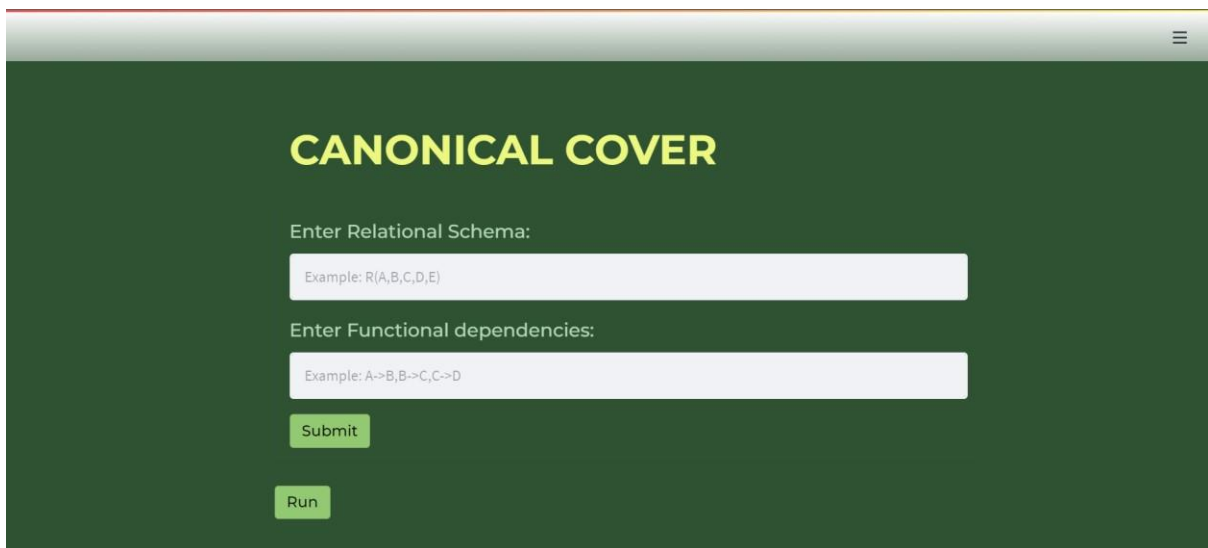


DBMS Canonical Cover

Project Features:

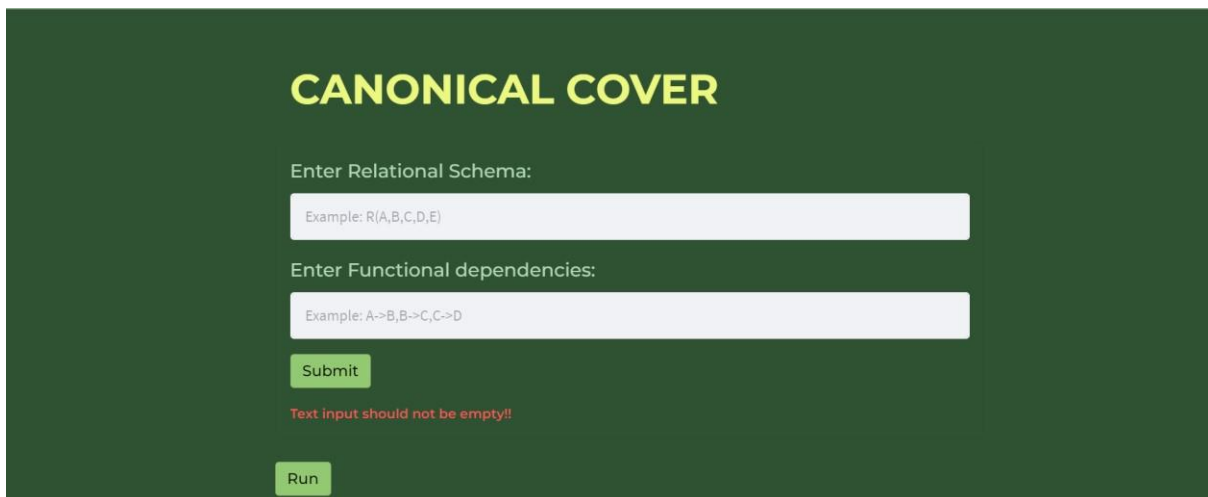
In this project we show step wise solution of canonical cover of any functional dependency using python GUI. For python GUI, we have used streamlit.

Project Screen Shots:



The screenshot shows a web application titled "CANONICAL COVER" with a dark green background. It features two input fields: "Enter Relational Schema:" with an example "R(A,B,C,D,E)" and "Enter Functional dependencies:" with an example "A->B,B->C,C->D". Below these fields are two green buttons labeled "Submit" and "Run".

If we submit without enter any values it will give us error.



The screenshot shows the same web application as the previous one, but with an error message displayed below the "Submit" button: "Text input should not be empty!!". The "Run" button remains visible below the error message.

If attributes in functional dependency are not present in relational schema then it will give us error about that.

CANONICAL COVER

Enter Relational Schema:

R(A,B)

Enter Functional dependencies:

A->B,B->C

Submit

C is not present in relational schema!!

Run

Here is our example.

CANONICAL COVER

Enter Relational Schema:

R(A,B,C,D,E,F,G,H)

Enter Functional dependencies:

A->B,ABCD->E,EF->GH,ACDF->EG

Submit

Run

Steps for canonical cover:

After giving input click on submit button. Then click on run button to get the result.

Main Functional Dependency List: ['A->B', 'ABCD->E', 'EF->GH', 'ACDF->EG']

Step-1: Decomposition

In this step we decompose all our functional dependency.

EF->GH will decompose into:

EF->G

EF->H

ACDF->EG will decompose into:

ACDF->E

ACDF->G

Functional dependency list after step-1: ['A->B', 'ABCD->E', 'EF->G', 'EF->H', 'ACDF->E', 'ACDF->G']

Step-2: Remove Extra Functional Dependency.

Here ACDF->E is extra functional dependency because closure of ACDF with right attributes and closure of ACDF without right attribute is same.

Here ACDF->G is extra functional dependency because closure of ACDF with right attributes and closure of ACDF without right attribute is same.

Functional Dependency list after step-2: ['A->B', 'ABCD->E', 'EF->G', 'EF->H']

Step-3: Remove Extra Attributes from functional dependency

In ABCD->E functional dependency attribute B is extra attribute.

Because B is present in the closure of ACD->E and closure of ACD->E is ['A', 'C', 'D', 'B', 'E']

Functional Dependency list after step-3: ['A->B', 'EF->G', 'EF->H', 'ACD->E']

Final Step: Composition

In this step we will compose all our functional dependency.

After Composition here is functional dependency list: ['A->B', 'ACD->E', 'EF->GH']