Fig1: The overall view for the choice of drugs taking drug interactions and comorbid diseases into consideration

The capital lettered statements in the brackets tell about the query and their subparts as being executed at a particular stage.
SELECT DF.DRUG_FAM_ID AS DRUG_FAM_OR_SUBFAM_ID, DF.DRUG_FAM AS DRUG_FAM_OR_SUBFAM
FROM DRUG_FAMILY AS DF
WHERE DF.DRUG_FAM_ID NOT IN // current drug families used by patient
(SELECT DF1.DRUG_FAM_ID FROM DRUG_FAMILY AS DF1,DRUG AS D,PATIENT_DRUG AS PD,PATIENT_HISTORY AS PH)
WHERE PH.PATIENT_ID = PD.PATIENT_ID AND
PD.DRUG_ID = D.DRUG_ID AND
D.DRUG_FAM_ID = DF1.DRUG_FAM_ID AND
PH.PATIENT_ID = PROVA)
AND DF.DRUG_FAM_ID NOT IN
(SELECT DF2.DRUG_FAM_ID FROM DRUG_FAMILY AS DF2, DRUG_DIS_EFFECT AS DDE,
PATIENT_HISTORY AS PH1
WHERE PH1.COMORBID_DIS = DDE.COMORBID_DIS AND
DDE.DRUG_FAM_ID = DF2.DRUG_FAM_ID AND
DDE.DRUG_EFF = 'UC' AND
PH1.PATIENT_ID = PROVA)
UNION
SELECT FS.DRUG_SUBFAM_ID AS DRUG_FAM_OR_SUBFAM_ID, FS.DRUG_SUBFAM AS
DRUG_FAM_OR_SUBFAM
FROM FAM_SUBFAM AS FS
WHERE FS.DRUG_SUBFAM_ID NOT IN
(SELECT FS1.DRUG_SUBFAM_ID FROM FAM_SUBFAM AS FS1,DRUG AS D1,PATIENT_DRUG AS
PD1,PATIENT_HISTORY AS PH2
WHERE PH2.PATIENT_ID = PD1.PATIENT_ID AND
PD1.DRUG_ID = D1.DRUG_ID AND
D1.DRUG_FAM_ID = FS1.DRUG_SUBFAM_ID AND
PH2.PATIENT_ID = PROVA)
AND FS.DRUG_SUBFAM_ID NOT IN
(SELECT FS2.DRUG_SUBFAM_ID FROM FAM_SUBFAM AS FS2, DRUG_DIS_EFFECT AS
DDE1,PATIENT_HISTORY AS PH3
WHERE PH3.COMORBID_DIS = DDE1.COMORBID_DIS AND
DDE1.DRUG_FAM_ID = FS2.DRUG_SUBFAM_ID AND
DDE1.DRUG_EFF = 'UC' AND
PH3.PATIENT_ID = PROVA)
AND FS.DRUG_SUBFAM_ID NOT IN
(SELECT FS3.DRUG_SUBFAM_ID FROM FAM_SUBFAM AS FS3, PATIENT_HISTORY AS PH4,
DRUG AS D2, PATIENT_DRUG AS PD2, DRUG_FAMILY AS DF3
WHERE PH4.PATIENT_ID = PD2.PATIENT_ID AND
PD2.DRUG_ID = D2.DRUG_ID AND
D2.DRUG_FAM_ID = DF3.DRUG_FAM_ID AND
DF3.DRUG_FAM_ID = FS3.DRUG_FAM_ID AND
PH4.PATIENT_ID = PROVA);

For PATIENT_ID = 11

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<th>DRUG_FAM_OR_SUBFAM_ID</th>
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<td>43</td>
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Fig 3: Child of the box with (QUERY CALL 2DRUG_EFFECT) in Fig1
//present the effects of possible drugs for the patient on comorbidities of the patient

BLUE : PART1 OF QUERY 2DRUG_EFFECT
GREEN : PART2 OF QUERY 2DRUG_EFFECT
BLACK : GENERAL/COMMON STATEMENTS

SELECT TDC.DRUG_FAM_OR_SUBFAM_ID, TDC.DRUG_FAM_OR_SUBFAM, DDE.COMORBID_DIS, DDE.DRUG_EFF
FROM 1TOTAL_DRUG_CHOICE AS TDC, DRUG_DIS_EFFECT AS DDE, PATIENT_HISTORY AS PH5
WHERE PH5.COMORBID_DIS = DDE.COMORBID_DIS AND
      TDC.DRUG_FAM_OR_SUBFAM_ID = DDE.DRUG_FAM_ID AND
      PH5.PATIENT_ID = PROVA;

For PATIENT_ID = 11

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<tr>
<td>20</td>
<td>ACE_1</td>
<td>DM1_PROTEINURIA</td>
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</table>
Fig 4. Subchild of the box with (QUERY EXECUTION OF PART2 OF 2DRUG_EFFECT) in Fig 3

This is a part of java engine for the guideline.
SELECT DI.DRUG_FAM_ID_1 AS DRUGFAM_SUBFAM, DF2.DRUG_FAM AS FAM_SUBFAM_NAME, DI.INTERACTION AS INTERACT
FROM DRUG_INTERACTION AS DI, DRUG_FAMILY AS DF2
WHERE DI.DRUG_FAM_ID_1 = DF2.DRUG_FAM_ID AND
      DI.DRUG_FAM_ID_2 = (SELECT DF4.DRUG_FAM_ID
                         FROM PATIENT_DRUG AS PD, DRUG_FAMILY AS DF4, DRUG AS D
                         WHERE DF4.DRUG_FAM_ID = D.DRUG_FAM_ID AND
                               D.DRUG_ID = PD.DRUG_ID AND PD.PATIENT_ID = PROVA);
// interaction of the current drug with other drug groups
SELECT DI1.DRUG_FAM_ID_2 AS DRUGFAM_SUBFAM, DF3.DRUG_FAM AS FAM_SUBFAM_NAME, DI1.INTERACTION AS INTERACT
FROM DRUG_INTERACTION AS DI1, DRUG_FAMILY AS DF3
WHERE DI1.DRUG_FAM_ID_2 = DF3.DRUG_FAM_ID AND
      DI1.DRUG_FAM_ID_1 = (SELECT DF5.DRUG_FAM_ID
                        FROM PATIENT_DRUG AS PD1, DRUG_FAMILY AS DF5, DRUG AS D1
                        WHERE DF5.DRUG_FAM_ID = D1.DRUG_FAM_ID AND
                                D1.DRUG_ID = PD1.DRUG_ID AND PD1.PATIENT_ID = PROVA);

UNION

SELECT FS.DRUG_SUBFAM_ID AS DRUGFAM_SUBFAM, FS.DRUG_SUBFAM AS FAM_SUBFAM_NAME, DI4.INTERACTION AS INTERACT
FROM FAM_SUBFAM AS FS, DRUG_INTERACTION AS DI4
WHERE DI4.DRUG_FAM_ID_1 = FS.DRUG_SUBFAM_ID AND
      FS.DRUG_SUBFAM_ID In
     (SELECT DI2.DRUG_FAM_ID_1 FROM DRUG_INTERACTION AS DI2, PATIENT_DRUG AS PD2, DRUG_FAMILY AS DF6, DRUG AS D2
      WHERE DI2.DRUG_FAM_ID_2 = DF6.DRUG_FAM_ID AND
              DF6.DRUG_FAM_ID = D2.DRUG_FAM_ID AND
              D2.DRUG_ID = PD2.DRUG_ID AND
              PD2.PATIENT_ID = PROVA)
     Or
     DI4.DRUG_FAM_ID_2 = FS.DRUG_SUBFAM_ID AND
     FS.DRUG_SUBFAM_ID In
     (SELECT DI3.DRUG_FAM_ID_2 FROM DRUG_INTERACTION AS DI3, PATIENT_DRUG AS PD3, DRUG_FAMILY AS DF7, DRUG AS D3
     WHERE DI3.DRUG_FAM_ID_1 = DF7.DRUG_FAM_ID AND
              DF7.DRUG_FAM_ID = D3.DRUG_FAM_ID AND
              D3.DRUG_ID = PD3.DRUG_ID AND
              PD3.PATIENT_ID = PROVA);

For PATIENT_ID = 11

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<tr>
<td>43 CCB_NON_DH</td>
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<td>CONTRA</td>
</tr>
</tbody>
</table>
Fig 6. Subchild of Box with (QUERY EXECUTED "UNION" OF PART1 AND PART2 OF 3DRUG_INTERACT) in Fig 5

This is a part of java engine in the guideline.