FUNCTIONAL DEPENDENCIES

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1) **Developer (**DEV_ID, D_NAME, D_EMAIL, D_CONTACT_INFO, D_ADDRESS, D_COUNTRY, GENDER, DOB**)**

{DEV_ID} → D_NAME
{DEV_ID} → D_CONTACT_INFO
{DEV_ID} → D_ADDRESS
{DEV_ID} → D_COUNTRY
{DEV_ID} → D_GENDER
{DEV_ID} → D_DOB

{D_EMAIL} → DEV_ID
{D_EMAIL} → D_NAME
{D_EMAIL} → D_CONTACT_INFO
{D_EMAIL} → D_ADDRESS
{D_EMAIL} → D_COUNTRY
{D_EMAIL} → GENDER
{D_EMAIL} → DOB

{D_CONTACT_INFO} → DEV_ID
{D_ CONTACT_INFO} → D_NAME
{D_ CONTACT_INFO} → D_EMAIL
{D_ CONTACT_INFO} → D_ADDRESS
{D_ CONTACT_INFO} → D_COUNTRY
{D_ CONTACT_INFO} → GENDER
{D_ CONTACT_INFO} → DOB

{D_ADDRESS} → D_COUNTRY

CANDIDATE KEY: DEV_ID, D_CONTACT_INFO, D_EMAIL

PRIME ATTRIBUTE: DEV_ID, D_CONTACT_INFO, D_EMAIL

NON-PRIME ATTRIBUTE: D_NAME, D_ADDRESS, D_COUNTRY, GENDER, DOB

As all the values of this table are atomic and this table does not contain partial dependency and transitive dependency and all non-prime attributes (**D_NAME, D_ADDRESS, D_COUNTRY, GENDER, DOB)** are depended upon candidate keys (**DEV_ID, D_CONTACT_INFO, D_EMAIL)**. So Developer table is in BCNF form.

CURRENT FORM: BCNF

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2) **COMPANY (**COM_ID, C_NAME, C_EMAIL, C_CONTACT_INFO, C_ADDRESS, C_COUNTRY, COMPANY_TYPE, COMPANY_SIZE**)**

{COM_ID}→C_NAME
{COM_ID}→C_EMAIL
{COM_ID}→C_CONTACT_INFO
{COM_ID}→C_ADDRESS
{COM_ID}→C_COUNTRY
{COM_ID}→COMPANY_TYPE
{COM_ID}→COMPANY_SIZE
{C_EMAIL}→C_NAME
{C_EMAIL}→COM_ID
{C_EMAIL}→C_CONTACT_INFO
{C_EMAIL}→C_ADDRESS
{C_EMAIL} →C_COUNTRY
{C_EMAIL}→COMPANY_TYPE
{C_EMAIL}→COMPANY_SIZE

{C_CONTACT_INFO}→C_NAME
{C_ CONTACT_INFO}→COM_ID
{C_ CONTACT_INFO}→C_EMAIL
{C_ CONTACT_INFO}→C_ADDRESS
{C_ CONTACT_INFO} →C_COUNTRY
{C_ CONTACT_INFO}→COMPANY_TYPE
{C_ CONTACT_INFO}→COMPANY_SIZE

{C_ADDRESS} → C_COUNTRY

CANDIDATE KEY: COM_ID, C_CONTACT_INFO, C_EMAIL

PRIME ATTRIBUTE: COM_ID, C_CONTACT_INFO, C_EMAIL

NON-PRIME ATTRIBUTE: C_NAME, C_ADDRESS, C_COUNTRY

As all the values of this table are atomic and this table does not contain partial dependency and transitive dependency and all non-prime attributes (**C_NAME, C_ADDRESS, C_COUNTRY)** are depended upon candidate keys (**COM_ID, C_CONTACT_INFO, C_EMAIL)**. So Company table is in BCNF form.

CURRENT FORM: BCNF

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3) **ADMIN (**ADM_ID, A_NAME, GENDER, A_EMAIL, A_CONTACT**)**

{ADM_ID}→A_NAME
{ADM _ID}→A_EMAIL
{ADM _ID}→A_CONTACT

{ADM _ID}→A_GENDER

{A_EMAIL}→A_NAME
{A_EMAIL}→ADM_ID
{A_EMAIL}→A_CONTACT
{A_EMAIL}→A_GENDER

{A_CONTACT}→A_NAME
{A_CONTACT}→ADM_ID
{A_CONTACT}→A_EMAIL
{A_CONTACT}→A_GENDER

CANDIDATE KEY: ADM_ID, A_CONTACT, A_EMAIL

PRIME ATTRIBUTE: ADM_ID, A_CONTACT, A_EMAIL

NON-PRIME ATTRIBUTE: A_NAME, GENDER

As all the values of this table are atomic and this table does not contain partial dependency and transitive dependency and all non-prime attributes (**: A_NAME, GENDER**) are depended upon candidate keys (**ADM_ID, A_CONTACT, A_EMAIL**). So Admin table is in BCNF form.

CURRENT FORM: BCNF

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4) SKILL (SKILL_ID, S_NAME, S_DESCRIPTION, IMPROVEMENT**)**

{SKILL_ID}→S_NAME
{SKILL _ID}→S_DESCRIPTION
{SKILL _ID}→IMPROVEMENT

CANDIDATE KEY: SKILL_ID

PRIME ATTRIBUTE: SKILL_ID

NON-PRIME ATTRIBUTE: S_NAME, S_DESCRIPTION, IMPROVEMENT

As all the values of this table are atomic and this table does not contain partial dependency and transitive dependency and all non-prime attributes (**S_NAME, S_DESCRIPTION, IMPROVEMENT)** are depended candidate keys (**SKILL_ID**).
So Skill table is in BCNF form.

CURRENT FORM: BCNF

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5) **QUESTION (**QUE_ID, TITLE, PATH, DIFFICULTY_LEVEL, TOTAL_SCORE, SKILL_ID**)**

{QUE_ID}→TITLE
{QUE_ID}→PATH
{QUE_ID}→DIFFICULTY_LEVEL
{QUE_ID}→TOTAL_SCORE
{QUE_ID}→SKILL_ID

{PATH}→TITLE
{PATH}→QUE_ID
{PATH}→DIFFICULTY_LEVEL
{PATH}→TOTAL_SCORE
{PATH}→SKILL_ID

CANDIDATE KEY: QUE_ID, PATH

PRIME ATTRIBUTE: QUE_ID, PATH

NON-PRIME ATTRIBUTE: TITLE, DIFFICULTY_LEVEL, TOTAL_SCORE, SKILL_ID

As all the values of this table are atomic and this table does not contain partial dependency and transitive dependency and all non-prime attributes (**TITLE, DIFFICULTY_LEVEL, TOTAL_SCORE, SKILL_ID)** are depended upon candidate keys (**QUE_ID, PATH)**. So Question table is in BCNF form.

CURRENT FORM: BCNF

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6) **ASSIGNMENT** (ASSI_ID, A_NAME, A_DESCRIPTION, A_STATUS, SKILL_ID, ADM_ID)

{ASSI_ID} → A_NAME
{ASSI_ID}→ A_DESCRIPTION
{ASSI_ID}→A_STATUS
{ASSI_ID}→ SKILL_ID
{ASSI_ID}→ADM_ID

CANDIDATE KEY: ASSI_ID

PRIME ATTRIBUTE: ASSI_ID

NON-PRIME ATTRIBUTE: A_NAME, A_DESCRIPTION, A_STATUS, SKILL_ID, ADM_ID
As all the values of this table are atomic and this table does not contain partial dependency and transitive dependency and all non-prime attributes (**A_NAME, A_DESCRIPTION, A_STATUS, SKILL_ID, ADM_ID)** are depended upon candidate keys (**ASSI_ID)**. So Assignment table is in BCNF form.

CURRENT FORM: BCNF

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7) **CONTEST**
(CON_ID, C_NAME, START_TIME_DATE, END_TIME_DATE, C_STATUS, ADM_ID, COM_ID**)**

{CON_ID} →C_NAME
{CON_ID} → START_TIME_DATE
{CON_ID} →END_TIME_DATE
{CON_ID} →C_STATUS
{CON_ID} →ADM_ID
{CON_ID} →COM_ID

CANDIDATE KEY: CON_ID

PRIME ATTRIBUTE: CON_ID

NON-PRIME ATTRIBUTE: **C_NAME, START_TIME_DATE, END_TIME_DATE, C_STATUS, ADM_ID, COM_ID**
As all the values of this table are atomic and this table does not contain partial dependency and transitive dependency and all non-prime attributes (**C_NAME, START_TIME_DATE, END_TIME_DATE, C_STATUS, ADM_ID, COM_ID)** are depended upon candidate key (**CON_ID)**. So Contest table is in BCNF form.

CURRENT FORM: BCNF

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8) **PROFILE** (DEV_ID, BIO, AVTAR, CURRENT_EDUCATION, YEAR_OF_GRADUATION, QUALIFICATION, TOTAL_SCORE)

{DEV_ID}→BIO
{DEV_ID}→AVTAR
{DEV_ID}→CURRENT_EDUCATION
{DEV_ID}→YEAR_OF_GRADUTION
{DEV_ID}→QUALIFICATION
{DEV_ID}→TOTAL_SCORE

CANDIDATE KEY: DEV_ID

PRIME ATTRIBUTE: DEV_ID

NON-PRIME ATTRIBUTE: BIO, AVTAR, CURRENT_EDUCATION, YEAR_OF_GRADUATION, QUALIFICATION, TOTAL_SCORE
As all the values of this table are atomic and this table does not contain partial dependency and transitive dependency and all non-prime attributes (**BIO, AVTAR, CURRENT_EDUCATION, YEAR_OF_GRADUATION, QUALIFICATION, TOTAL_SCORE)** are depended upon candidate key (**DEV_ID)**. So Profile table is in BCNF form.

CURRENT FORM: BCNF

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9) **CERTIFICATE (**TITLE, RANK, DEV_ID, CON_ID**)**

{DEV_ID, CON_ID}→TITLE
{DEV_ID, CON_ID}→RANK

CANDIDATE KEY: {DEV_ID, CON_ID}

PRIME ATTRIBUTE: DEV_ID, CON_ID

NON-PRIME ATTRIBUTE: TITLE, RANK
As all the values of this table are atomic and this table does not contain partial dependency and transitive dependency and all non-prime attributes (**TITLE, RANK)** are depended upon candidate keys (**DEV_ID, CON_ID)**. So certificate table is in BCNF form.

CURRENT FORM: BCNF

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10) **JOB_INFORMATION** (SALARY, JOB_TITLE, ABOUT, ELIGIBILITY, TOTAL_INTAKE, CON_ID)

{CON_ID} → SALARY
{CON_ID} →JOB_TITLE
{CON_ID} →ABOUT
{CON_ID} →ELIGIBILITY
{CON_ID} →TOATAL_INTAKE

CANDIDATE KEY: CON_ID

PRIME ATTRIBUTE: CON_ID

NON-PRIME ATTRIBUTE: SALARY, JOB_TITLE, ABOUT, ELIGIBILITY, TOTAL_INTAKE

As all the values of this table are atomic and this table does not contain partial dependency and transitive dependency and all non-prime attributes **SALARY, JOB_TITLE, ABOUT, ELIGIBILITY, TOTAL_INTAKE)** are depended upon candidate keys (**CON_ID)**. So Job_information table is in BCNF form.

CURRENT FORM: BCNF

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11) **HOBBY (**H_NAME, DEV_ID**)**

{DEV_ID, H_NAME}→ H_NAME
{DEV_ID, H_NAME}→ DEV_ID

CANDIDATE KEY: {DEV_ID, H_NAME}

PRIME ATTRIBUTE: DEV_ID, H_NAME

NON-PRIME ATTRIBUTE: NULL

As all the values of this table are atomic and this table does not contain partial dependency and transitive dependency. So Hobby table is in BCNF form.

CURRENT FORM: BCNF

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12) **TESTCASE (**INPUT, QUE_ID, OUTPUT**)**

{INPUT, QUE_ID} → OUTPUT

CANDIDATE KEY: {INPUT, QUE_ID}

PRIME ATTRIBUTE: INPUT, QUE_ID

NON-PRIME ATTRIBUTE: OUTPUT

As all the values of this table are atomic and this table does not contain partial dependency and transitive dependency. So Testcase table is in BCNF form.

CURRENT FORM: BCNF

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13) **PRACTICE_ASSIGNMENT (**ASSI_ID, DEV_ID**)**

{ASSI_ID, DEV_ID}→ASSI_ID
{ASSI_ID, DEV_ID}→DEV_ID

CANDIDATE KEY: {ASSI_ID, DEV_ID}

PRIME ATTRIBUTE: ASSI_ID, DEV_ID

NON-PRIME ATTRIBUTE: NULL

As all the values of this table are atomic and this table does not contain partial dependency and transitive dependency. So PRACTICE_ASSIGNMENT table is in BCNF form.

CURRENT FORM: BCNF

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14) CONTAINS (SKILL_ID, DEV_ID, SCORE**)**

{SKILL_ID, DEV_ID}→ SCORE

CANDIDATE KEY: {SKILL_ID, DEV_ID}

PRIME ATTRIBUTE: SKILL_ID, DEV_ID

NON-PRIME ATTRIBUTE: SCORE

As all the values of this table are atomic and this table does not contain partial dependency and transitive dependency. So contains table is in BCNF form.

CURRENT FORM: BCNF

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15) ATTEND_QUE_ASSIGNMENT (DEV_ID, QUE_ID, ASSI_ID, STATUS**)**

{DEV_ID, QUE_ID, ASSI_ID}→STATUS

CANDIDATE KEY: {DEV_ID, QUE_ID, ASSI_ID}

PRIME ATTRIBUTE: DEV_ID, QUE_ID, ASSI_ID

NON-PRIME ATTRIBUTE: STATUS

As all the values of this table are atomic and this table does not contain partial dependency and transitive dependency and all non-prime attributes (**STATUS**) are depended upon candidate keys (**DEV_ID, QUE_ID, ASSI_ID)**.
So ATTEND_QUE_ASSIGNMENT table is in BCNF form.

CURRENT FORM: BCNF

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16) **QUE_ASSIGN_ASSIGNMENT (**QUE_ID, ASSI_ID**)**

{QUE_ID, ASSI_ID}→QUE_ID
{QUE_ID, ASSI_ID}→ASSI_ID

CANDIDATE KEY: {QUE_ID, ASSI_ID}

PRIME ATTRIBUTE: QUE_ID, ASSI_ID

NON-PRIME ATTRIBUTE: NULL

As all the values of this table are atomic and this table does not contain partial dependency and transitive dependency. So QUE_ASSIGN_ASSIGNMENT table is in BCNF form.

CURRENT FORM: BCNF

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17) **ATTEND_TESTCASE_ASSIGNMENT (**DEV_ID, QUE_ID, ASSI_ID, INPUT, STATUS**)**

{DEV_ID, QUE_ID, ASSI_ID, INPUT}→STATUS

CANDIDATE KEY: {DEV_ID, QUE_ID, ASSI_ID, INPUT}

PRIME ATTRIBUTE: DEV_ID, QUE_ID, ASSI_ID, INPUT

NON-PRIME ATTRIBUTE: STATUS

As all the values of this table are atomic and this table does not contain partial dependency and transitive dependency and all non-prime attributes (**STATUS**) are depended upon candidate keys (**DEV_ID, QUE_ID, ASSI_ID,INPUT)**.
So ATTEND_ TESTCASE _ASSIGNMENT table is in BCNF form.

CURRENT FORM: BCNF

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18) **ATTEND_QUE_CONTEST (**DEV_ID, QUE_ID, CON_ID, STATUS**)**

{DEV_ID, QUE_ID, CON_ID}→STATUS

CANDIDATE KEY: {DEV_ID, QUE_ID, CON_ID}

PRIME ATTRIBUTE: DEV_ID, QUE_ID, CON_ID

NON-PRIME ATTRIBUTE: STATUS

As all the values of this table are atomic and this table does not contain partial dependency and transitive dependency and all non-prime attributes (**STATUS**) are depended upon candidate keys (**DEV_ID, QUE_ID, CON_ID,INPUT)**. So ATTEND_ QUE_CONTEST table is in BCNF form.

CURRENT FORM: BCNF

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19) ATTEND_TESTCASE_CONTEST (DEV_ID, QUE_ID, CON_ID, INPUT, STATUS**)**

{DEV_ID, QUE_ID, CON_ID, INPUT}→STATUS

CANDIDATE KEY: {DEV_ID, QUE_ID, CON_ID, INPUT}

PRIME ATTRIBUTE: DEV_ID, QUE_ID, CON_ID, INPUT

NON-PRIME ATTRIBUTE: STATUS

As all the values of this table are atomic and this table does not contain partial dependency and transitive dependency and all non-prime attributes (**STATUS**) are depended upon candidate keys (**DEV_ID, QUE_ID, CON_ID, INPUT)**.
So ATTEND_ TESTCASE _CONTEST table is in BCNF form.

CURRENT FORM: BCNF

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20) ASSIGN_IN (QUE_ID, CON_ID**)**

{QUE_ID, CON_ID}→QUE_ID
{QUE_ID, CON_ID}→CON_ID

CANDIDATE KEY: {QUE_ID, CON_ID}

PRIME ATTRIBUTE: QUE_ID, CON_ID

NON-PRIME ATTRIBUTE: NULL

As all the values of this table are atomic and this table does not contain partial dependency and transitive dependency. So Assign_in table is in BCNF form.

CURRENT FORM: BCNF

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21) **PARTICIPATE (**DEV_ID, CON_ID, SCORE, IS_RECRUITED**)**

{DEV_ID, CON_ID}→SCORE
{DEV_ID, CON_ID}→IS_RECRUITED

CANDIDATE KEY: {DEV_ID, CON_ID}

PRIME ATTRIBUTE: DEV_ID, CON_ID

NON-PRIME ATTRIBUTE: SCORE, IS_RECRUITED

As all the values of this table are atomic and this table does not contain partial dependency and transitive dependency and all non-prime attributes (**SCORE, IS_RECRUITED**) are depended upon candidate keys (**DEV_ID, CON_ID,)**.
So **PARTICIPATE** table is in BCNF form.

CURRENT FORM: BCNF