Normal Form

Below data is used to describe information of treatment for pets at a pet medical center. Using decomposition technique to model these data into relational model basing normal forms. You should start from 1NF to 3NF.

1. Healthy history report

**PET ID PET NAME PET TYPE PET AGE OWNER VISIT DATE PROCEDURE**

246 ROVER DOG 12 SAM COOK JAN 13/2002 01 - RABIES VACCINATION

MAR 27/2002 10 - EXAMINE and TREAT WOUND

APR 02/2002 05 - HEART WORM TEST

298 SPOT DOG 2 TERRY KIM JAN 21/2002 08 - TETANUS VACCINATION

MAR 10/2002 05 - HEART WORM TEST

341 MORRIS CAT 4 SAM COOK JAN 23/2001 01 - RABIES VACCINATION

JAN 13/2002 01 - RABIES VACCINATION

519 TWEEDY BIRD 2 TERRY KIM APR 30/2002 20 - ANNUAL CHECK UP

APR 30/2002 12 - EYE WASH

1. Invoice

**HILLTOP ANIMAL HOSPITAL**  **DATE: JAN 13/2002**

***INVOICE # 987***

*MR. RICHARD COOK - 123 THIS STREET - MY CITY, ONTARIO*

*Z5Z 6G6*

**PET PROCEDURE AMOUNT**

ROVER RABIES VACCINATION 30.00

MORRIS RABIES VACCINATION 24.00

TOTAL 54.00

TAX (8%) 4.32

AMOUNT OWING 58.32

1. Healthy history report

1NF

|  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- |
| **PET ID** | **PET NAME** | **PET TYPE** | **PET AGE** | **OWNER** | **VISIT DATE** | **PROCEDURE** |
| 246 | ROVER | DOG | 12 | SAM COOK | JAN 13/2002 | 01 - RABIES VACCINATION |
| 246 | ROVER | DOG | 12 | SAM COOK | MAR 27/2002 | 10 - EXAMINE and TREAT WOUND |
| 246 | ROVER | DOG | 12 | SAM COOK | APR 02/2002 | 05 - HEART WORM TEST |
| 298 | SPOT | DOG | 2 | TERRY KIM | JAN 21/2002 | 08 - TETANUS VACCINATION |
| 298 | SPOT | DOG | 2 | TERRY KIM | MAR 10/2002 | 05 - HEART WORM TEST |
| 341 | MORRIS | CAT | 4 | SAM COOK | JAN 23/2001 | 01 - RABIES VACCINATION |
| 341 | MORRIS | CAT | 4 | SAM COOK | JAN 13/2002 | 01 - RABIES VACCINATION |
| 519 | TWEEDY | BIRD | 2 | TERRY KIM | APR 30/2002 | 20 - ANNUAL CHECK UP |
| 519 | TWEEDY | BIRD | 2 | TERRY KIM | APR 30/2002 | 12 - EYE WASH |

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| --- | --- | --- | --- | --- | --- | --- |
| **PET ID** | **PET NAME** | **PET TYPE** | **PET AGE** | **OWNER** | **VISIT DATE** | **PROCEDURE** |
| 246 | ROVER | DOG | 12 | SAM COOK | JAN 13/2002  MAR 27/2002  APR 02/2002 | 01 - RABIES VACCINATION  10 - EXAMINE and TREAT WOUND  05 - HEART WORM TEST |
| 298 | SPOT | DOG | 2 | TERRY KIM | JAN 21/2002  MAR 10/2002 | 08 - TETANUS VACCINATION  05 - HEART WORM TEST |
| 341 | MORRIS | CAT | 4 | SAM COOK | JAN 23/2001  JAN 13/2002 | 01 - RABIES VACCINATION  01 - RABIES VACCINATION |
| 519 | TWEEDY | BIRD | 2 | TERRY KIM | APR 30/2002  APR 30/2002 | 20 - ANNUAL CHECK UP  12 - EYE WASH |

2NF

|  |  |  |  |
| --- | --- | --- | --- |
| **PET ID** | **PET NAME** | **PET TYPE** | **PET AGE** |
| 246 | ROVER | DOG | 12 |
| 298 | SPOT | DOG | 2 |
| 341 | MORRIS | CAT | 4 |
| 519 | TWEEDY | BIRD | 2 |

|  |  |  |  |
| --- | --- | --- | --- |
| **VISIT DATE** | **OWNER** | **PID** | **PROCEDURE** |
| JAN 13/2002 | SAM COOK | 01 | RABIES VACCINATION |
| MAR 27/2002 | SAM COOK | 10 | EXAMINE and TREAT WOUND |
| APR 02/2002 | SAM COOK | 05 | HEART WORM TEST |
| JAN 21/2002 | TERRY KIM | 08 | TETANUS VACCINATION |
| MAR 10/2002 | TERRY KIM | 05 | HEART WORM TEST |
| JAN 23/2001 | SAM COOK | 01 | RABIES VACCINATION |
| APR 30/2002 | SAM COOK | 20 | ANNUAL CHECK UP |
| APR 30/2002 | TERRY KIM | 12 | EYE WASH |

|  |  |
| --- | --- |
| **PET ID** | **VISIT DATE** |
| 246 | JAN 13/2002 |
| 246 | MAR 27/2002 |
| 246 | APR 02/2002 |
| 298 | JAN 21/2002 |
| 298 | MAR 10/2002 |
| 341 | JAN 23/2001 |
| 341 | JAN 13/2002 |
| 519 | APR 30/2002 |

3NF

|  |  |  |  |
| --- | --- | --- | --- |
| **PET ID** | **PET NAME** | **PET TYPE** | **PET AGE** |
| 246 | ROVER | DOG | 12 |
| 298 | SPOT | DOG | 2 |
| 341 | MORRIS | CAT | 4 |
| 519 | TWEEDY | BIRD | 2 |

|  |  |  |  |
| --- | --- | --- | --- |
| **VISIT DATE** | **OWNER** | **PID** | **PROCEDURE** |
| JAN 13/2002 | SAM COOK | 01 | RABIES VACCINATION |
| MAR 27/2002 | SAM COOK | 10 | EXAMINE and TREAT WOUND |
| APR 02/2002 | SAM COOK | 05 | HEART WORM TEST |
| JAN 21/2002 | TERRY KIM | 08 | TETANUS VACCINATION |
| MAR 10/2002 | TERRY KIM | 05 | HEART WORM TEST |
| JAN 23/2001 | SAM COOK | 01 | RABIES VACCINATION |
| APR 30/2002 | SAM COOK | 20 | ANNUAL CHECK UP |
| APR 30/2002 | TERRY KIM | 12 | EYE WASH |

|  |  |
| --- | --- |
| **PID** | **PROCEDURE** |
| 01 | RABIES VACCINATION |
| 10 | EXAMINE and TREAT WOUND |
| 05 | HEART WORM TEST |
| 08 | TETANUS VACCINATION |
| 20 | ANNUAL CHECK UP |
| 12 | EYE WASH |

2: Invoice

1NF:

|  |  |  |  |
| --- | --- | --- | --- |
| **INVOICE ID** | **OWNER** | **ADDRESS** | **VISIT DATE** |
| # 987 | MR. RICHARD COOK | 123 THIS STREET - MY CITY, ONTARIO Z5Z 6G6 | **JAN 13/2002** |

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| **INVOICE ID** | **PID** | **PNAME** | **PROCEDURE** | **AMOUNT** |
| # 987 | 246 | ROVER | RABIES VACCINATION | 30.00 |
| # 987 | 341 | MORRIS | RABIES VACCINATION | 24.00 |

2NF:

|  |  |  |  |
| --- | --- | --- | --- |
| **INVOICE ID** | **OWNER** | **ADDRESS** | **VISIT DATE** |
| # 987 | MR. RICHARD COOK | 123 THIS STREET - MY CITY, ONTARIO Z5Z 6G6 | **JAN 13/2002** |

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
| **INVOICE ID** | **PID** | **PROCEDURE** | **AMOUNT** |  |  |
| # 987 | 246 | RABIES VACCINATION | 30.00 |  |  |
| # 987 | 341 | RABIES VACCINATION | 24.00 |  |  |

|  |  |
| --- | --- |
| **PID** | **PNAME** |
| 246 | ROVER |
| 341 | MORRIS |

3NF:

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
| **INVOICE ID** | **PID** | **PROCEDURE** | **AMOUNT** |  |  |
| **# 987** | 246 | RABIES VACCINATION | 30.00 |  |  |
| **# 987** | 341 | RABIES VACCINATION | 24.00 |  |  |

|  |  |
| --- | --- |
| **PID** | **PNAME** |
| 246 | ROVER |
| 341 | MORRIS |

|  |  |  |
| --- | --- | --- |
| **INVOICE ID** | **VISIT DATE** | **CUST\_NO** |
| # 987 | JAN 13/2002 | Z5Z 6G6 |

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| **CUST\_NO** | **CUST\_NAME** | **CUST\_STREET** | **CUST\_CITY** | **CUST\_COUNTRY** |
| Z5Z 6G6 | MR.RICHARD COOK | 123 THIS STREET | MY CITY | ONTARIO |