DBT Problem Solving - Set - 010

Feb19/ DBT-PS/ 010

Database Technologies

Diploma in Advance Computing

February 2019

**Product Table:**

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| **id** | **Name** | **Price** | **otherCharges** | **isPerishable** |
| 1 | Gold Pen | 225 | 20 | n |
| 2 | Rare Cheese | 250 | 45 | y |
| 3 | Keyboard | 125 | 50 | n |
| 4 | Premium Coffee | 200 | 17 | y |
| 5 | Cycle | 1200 | 22 | n |
| 6 | Deluxe Pencils | 100 | 15 | n |

**Material\_Type Table:**

|  |  |
| --- | --- |
| **id** | **type** |
| 1 | solid |
| 2 | liquid |
| 3 | gas |
| 4 | plasma |

**Material Table:**

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| **id** | **name** | **typeID** | **isPerishable** | **cost** |
| 1 | cap | 1 | n | 6 |
| 2 | barrel | 1 | n | 12 |
| 3 | ink tube | 1 | n | 12 |
| 4 | ink | 2 | n | 10 |
| 5 | milk | 2 | y | 8 |
| 6 | cheese salt | 1 | y | 11 |
| 7 | black | 2 | n | 8 |
| 8 | red | 2 | n | 10 |
| 9 | green | 2 | n | 10 |
| 10 | blue | 2 | n | 6 |
| 11 | yellow | 2 | n | 12 |
| 12 | nut | 1 | n | 5 |
| 13 | bolt | 1 | n | 12 |
| 14 | cover | 1 | n | 7 |
| 15 | water | 2 | y | 8 |
| 16 | cotton | 1 | y | 9 |
| 17 | cloth | 1 | y | 9 |
| 18 | card board | 1 | n | 11 |
| 19 | steel | 1 | n | 6 |
| 20 | glass | 1 | n | 8 |
| 21 | plastics | 1 | n | 11 |
| 22 | wood | 1 | n | 8 |
| 23 | paper | 1 | y | 9 |
| 24 | leather | 1 | y | 10 |
| 25 | rubber | 1 | n | 10 |
| 26 | powder | 1 | n | 9 |
| 27 | wire | 1 | n | 5 |
| 28 | copper | 1 | n | 7 |
| 29 | iron | 1 | n | 6 |
| 30 | coffee | 1 | y | 10 |
| 31 | sugar | 1 | y | 11 |
| 32 | Tyre | 1 | n | 8 |
| 33 | light | 1 | n | 10 |
| 34 | door | 1 | n | 8 |
| 35 | aluminum | 1 | n | 9 |
| 36 | copper | 1 | n | 6 |
| 37 | Cocoa | 1 | y | 11 |
| 38 | Ballpoint | 1 | n | 9 |
| 39 | Graphite | 1 | n | 10 |
| 40 | White | 2 | n | 5 |

**BOM Table:**

|  |  |  |  |
| --- | --- | --- | --- |
| **id** | **productID** | **materialID** | **quantity** |
| 1 | 1 | 1 | 1 |
| 2 | 1 | 2 | 1 |
| 3 | 1 | 8 | 1 |
| 4 | 1 | 9 | 1 |
| 5 | 1 | 10 | 1 |
| 6 | 1 | 11 | 1 |
| 7 | 1 | 38 | 1 |
| 8 | 2 | 5 | 1 |
| 9 | 2 | 15 | 1 |
| 10 | 2 | 31 | 1 |
| 11 | 2 | 35 | 1 |
| 12 | 2 | 14 | 1 |
| 13 | 2 | 6 | 1 |
| 14 | 3 | 7 | 1 |
| 15 | 3 | 40 | 1 |
| 16 | 3 | 14 | 1 |
| 17 | 3 | 18 | 1 |
| 18 | 3 | 19 | 1 |
| 19 | 3 | 21 | 1 |
| 20 | 3 | 28 | 1 |
| 21 | 3 | 35 | 1 |
| 22 | 4 | 5 | 1 |
| 23 | 4 | 15 | 1 |
| 24 | 4 | 30 | 1 |
| 25 | 4 | 31 | 1 |
| 26 | 4 | 37 | 1 |
| 27 | 5 | 2 | 1 |
| 28 | 5 | 7 | 1 |
| 29 | 5 | 8 | 1 |
| 30 | 5 | 9 | 1 |
| 31 | 5 | 12 | 1 |
| 32 | 5 | 13 | 1 |
| 33 | 5 | 19 | 1 |
| 34 | 5 | 21 | 1 |
| 35 | 5 | 36 | 1 |
| 36 | 5 | 25 | 1 |
| 37 | 5 | 27 | 1 |
| 38 | 5 | 29 | 1 |
| 39 | 5 | 32 | 1 |
| 40 | 5 | 33 | 1 |
| 41 | 5 | 35 | 1 |
| 42 | 6 | 25 | 1 |
| 43 | 6 | 18 | 1 |
| 44 | 6 | 22 | 1 |
| 45 | 6 | 39 | 1 |

**Given the above tables solve the following queries.**

1. **Write a query to display all perishable products.**

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1. **Write a query to display the product names and list of material required for production.**

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1. **Write a query to find the list of product which uses perishable material for production.**

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1. **Write a query to calculate product wise total cost incurred to manufacture a product (Only raw materials).**

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1. **Write a query to calculate product wise total cost incurred to manufacture a product including other charges.**

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1. **Write a query to display all product names where liquid material is used.**

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1. **Write a query to display all the material type which is used to produce any product.**

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1. **Write a query to display all the material type which is not used to produce any product.**

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1. **Write a query to display the product name in which raw material 'Milk' is used.**

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1. **Write a query to display the product name where maximum raw material is used.**

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1. **Write a query to display the material name which is the costliest.**

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1. **Write a query to find the material name whose cost is in the range of 10 and 20.**

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1. **Write a query to calculate 10% tax on production cost for 'Cycle'.**

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1. **Write the query to display all material names whose material state is 'Solid'.**

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1. **Write a query to display all product details where in their name 'E' is appearing.**

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**ANS.**

1. **select \* from product where isPerishable = 'y';**
2. **select product.name, material.name from product, material, bom where product.id = bom. productID and bom. materialID = material.id;**
3. **select distinct product.name from product, material, bom where product.id = bom. productID and bom.materialID = material.id and material.isPerishable = 'Y';**
4. **select product.name, sum(cost\*quantity) "Total Production Cost" from product, material, bom where product.id = bom.productID and bom.materialID = material.id group by product.name;**
5. **select product.name, sum(cost\*quantity) + otherCharges "Total Production Cost" from product, material, bom where product.id = bom.productID and bom.materialID = material.id group by product.name;**
6. **select distinct product.name from product, bom, material where product.id= bom.productID and bom.materialID= material.id and typeID = 2;**
7. **select distinct material\_type.type from material\_type, bom where bom.materialID = material\_Type.id;**
8. **select material\_type.type from material\_type where not exists (select \* from bom where bom.materialID = material\_Type.id);**
9. **select product.name from product, bom, material where product.id = bom.productID and bom.materialID = material.id and material.name = 'Milk';**
10. **select product.Name from bom, product where product.id = bom.productID group by productID having count(\*) = (select max(r1) from (select count(\*) R1 from bom group by productID) T1);**
11. **select material.name from material where cost = (select max(cost) from material);**
12. **select material.name from material where cost between 10 and 20;**
13. **select sum(cost) 'Production Cost', sum(cost) \*.10 "Tax" from product, bom, material where product.id = bom.productID and bom.materialID = material.ID and product.name = 'Cycle';**
14. **select material.name from material\_type, material where material.typeID = material\_type.id and material\_type.type='Solid';**
15. **select \* from product where name like '%e%';**