

Task Testing Results:

Task Number	Functionality Being Tested	SQL Query and Test Result (pgAdmin)	Test Result (Web Interface)												
1	Test for Correct insertion.	<div><div><div>INSERT INTO category VALUES(9, 'Technology', 'Non-fiction');</div><div></div></div><div><div>Output pane</div><div><div>Data Output</div><div>Explain</div><div>Messages</div><div>History</div></div><div>Query returned successfully: one row affected, 34 msec execution time.</div><table><tr><td>7</td><td>9</td><td>Technology</td><td>Non-fiction</td></tr></table></div></div>	7	9	Technology	Non-fiction	<div><div>Statement 1 - Add a New Category:</div><div><div>CategoryID</div><div></div><div>Category Name</div><div></div><div><div><div><div></div></div>fiction</div><div><div><div></div></div>Non-fiction</div></div><div>Add Category to Database</div></div><div>Category Added</div><table><tr><td>7</td><td>9</td><td>Technology</td><td>Non-fiction</td></tr><tr><td>*</td><td></td><td></td><td></td></tr></table></div>	7	9	Technology	Non-fiction	*			
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<p>Ensuring Non-unique CategoryID does not submit.</p>	<div><div><div>INSERT INTO Category VALUES(1, 'Travel', 'Non-fiction');</div><div><</div></div><div>Output pane</div><div><div>Data Output</div><div>Explain</div><div>Messages</div><div>History</div></div><div>ERROR: duplicate key value violates unique constraint "category_pkey" DETAIL: Key (categoryid)=(1) already exists. ***** Error ***** ERROR: duplicate key value violates unique constraint "category_pkey" SQL state: 23505 Detail: Key (categoryid)=(1) already exists.</div></div>	<div>Statement 1 - Add a New Category:</div> <div><div>CategoryID</div><div></div><div>Category Name</div><div></div><div><div><input type="radio"/> fiction</div><div><input checked="" type="radio"/> Non-fiction</div></div><div>Add Category to Database</div></div> <div>Record NOT Added duplicate key value violates unique constraint "category_pkey" DETAIL: Key (categoryid)=(1) already exists.</div>
<p>Ensuring Null CategoryID will return error.</p>	<div><div><div>INSERT INTO Category(Name, CategoryType) VALUES('Romance', 'fiction');</div><div><</div></div><div>Output pane</div><div><div>Data Output</div><div>Explain</div><div>Messages</div><div>History</div></div><div>ERROR: null value in column "categoryid" violates not-null constraint DETAIL: Failing row contains (null, Romance, fiction). ***** Error ***** ERROR: null value in column "categoryid" violates not-null constraint SQL state: 23502 Detail: Failing row contains (null, Romance, fiction).</div></div>	<div>Statement 1 - Add a New Category:</div> <div><div>CategoryID</div><div></div><div>Category Name</div><div></div><div><div><input type="radio"/> fiction</div><div><input checked="" type="radio"/> Non-fiction</div></div><div>Add Category to Database</div></div> <div>Record NOT Added Error: Missing Category ID (Custom error message passed as exception).</div>
<p>Testing that Incorrect format of CategoryID returns error (INTEGER domain).</p>	<div><div><div>INSERT INTO Category VALUES('five', 'Architecture', 'non-fiction');</div><div><</div></div><div>Output pane</div><div><div>Data Output</div><div>Explain</div><div>Messages</div><div>History</div></div><div>ERROR: invalid input syntax for integer: "five" LINE 3: INSERT INTO Category VALUES('five', 'Architecture', 'non-fic... ^ ***** Error ***** ERROR: invalid input syntax for integer: "five" SQL state: 22P02 Character: 70</div></div>	<div>Statement 1 - Add a New Category:</div> <div><div>CategoryID</div><div>five</div><div>Please enter a number</div><div>Architecture</div><div><div><input type="radio"/> fiction</div><div><input checked="" type="radio"/> Non-fiction</div></div><div>Add Category to Database</div></div>

<p>Testing that a Non-unique Category Name does not submit.</p>	<div><div><div>INSERT INTO Category VALUES(110, 'Kids', 'Non-fiction');</div><div><</div></div><div>Output pane</div><div><div>Data Output</div><div>Explain</div><div>Messages</div><div>History</div></div><div>ERROR: duplicate key value violates unique constraint "category_name_key" DETAIL: Key (name)=(Kids) already exists. ***** Error ***** ERROR: duplicate key value violates unique constraint "category_name_key" SQL state: 23505 Detail: Key (name)=(Kids) already exists.</div></div>	<div>Statement 1 - Add a New Category:</div> <div><div>CategoryID</div><div></div><div>Category Name</div><div></div><div><div><input type="radio"/> fiction</div><div><input checked="" type="radio"/> Non-fiction</div></div><div>Add Category to Database</div></div> <div>Record NOT Added duplicate key value violates unique constraint "category_name_key" DETAIL: Key (name)=(Kids) already exists.</div>
<p>Ensure Null Category Name is rejected.</p>	<div><div><div>INSERT INTO Category(CategoryID, CategoryType) VALUES(111, 'Non-fiction');</div><div><</div></div><div>Output pane</div><div><div>Data Output</div><div>Explain</div><div>Messages</div><div>History</div></div><div>ERROR: null value in column "name" violates not-null constraint DETAIL: Failing row contains (111, null, Non-fiction). ***** Error ***** ERROR: null value in column "name" violates not-null constraint SQL state: 23502 Detail: Failing row contains (111, null, Non-fiction).</div></div>	<div>Statement 1 - Add a New Category:</div> <div><div>CategoryID</div><div></div><div>Category Name</div><div></div><div><div><input type="radio"/> fiction</div><div><input checked="" type="radio"/> Non-fiction</div></div><div>Add Category to Database</div></div> <div>Record NOT Added Error: Missing Category Name</div>
<p>Ensure Overly long Category Name is rejected (VARCHAR limit test).</p>	<div><div><div>INSERT INTO Category VALUES(112, 'Really long category name which should be rejected by the database', 'Non-fiction');</div><div><</div></div><div>Output pane</div><div><div>Data Output</div><div>Explain</div><div>Messages</div><div>History</div></div><div>ERROR: value too long for type character varying(50) ***** Error ***** ERROR: value too long for type character varying(50) SQL state: 22001</div></div>	<div>Statement 1 - Add a New Category:</div> <div><div>CategoryID</div><div></div><div>Category Name</div><div></div><div><div><input type="radio"/> fiction</div><div><input checked="" type="radio"/> Non-fiction</div></div><div>Add Category to Database</div></div> <div>Record NOT Added value too long for type character varying(50)</div>

	<p>Testing that a Null CategoryType results in an error.</p>	<div><div><div>INSERT INTO Category(CategoryID, Name) VALUES(113, 'Religion');</div><div><</div></div><div>Output pane</div><div><div>Data Output</div><div>Explain</div><div>Messages</div><div>History</div></div><div>ERROR: null value in column "categorytype" violates not-null constraint DETAIL: Failing row contains (113, Religion, null). ***** Error ***** ERROR: null value in column "categorytype" violates not-null constraint SQL state: 23502 Detail: Failing row contains (113, Religion, null).</div></div>	<div>Statement 1 - Add a New Category:</div> <div><div>CategoryID</div><div>113</div><div>Category Name</div><div>Religion</div><div><div><input type="radio"/> fiction</div><div><input checked="" type="radio"/> Non-fiction</div></div><div>Add Category to Database</div></div> <div>(Impossible to submit due to form input restriction).</div>																
	<p>Test to break domain constraint on CategoryType column.</p> <p>(CHECK (CategoryType IN ('fiction', 'Non-fiction'))).</p>	<div><div><div>INSERT INTO Category VALUES(114, 'Medical', 'factual');</div><div><</div></div><div>Output pane</div><div><div>Data Output</div><div>Explain</div><div>Messages</div><div>History</div></div><div>ERROR: new row for relation "category" violates check constraint "category_categorytype_check" DETAIL: Failing row contains (114, Medical, factual). ***** Error ***** ERROR: new row for relation "category" violates check constraint "category_categorytype_check" SQL state: 23514 Detail: Failing row contains (114, Medical, factual).</div></div>	<div>Statement 1 - Add a New Category:</div> <div><div>CategoryID</div><div>114</div><div>Category Name</div><div>Medical</div><div><div><input type="radio"/> fiction</div><div><input checked="" type="radio"/> Non-fiction</div></div><div>Add Category to Database</div></div> <div>(Again, Impossible to submit due to form input restriction).</div>																
2	<p>Test for correct deletion.</p>	<div><div><div>DELETE FROM category WHERE CategoryID = 8;</div><div><</div></div><div>Output pane</div><div><div>Data Output</div><div>Explain</div><div>Messages</div><div>History</div></div><div>Query returned successfully: one row affected, 45 msec execution time.</div><div><table><tr><td>5</td><td>7</td><td>Sports</td><td>Non-fiction</td></tr><tr><td>6</td><td>9</td><td>Technology</td><td>Non-fiction</td></tr></table></div></div>	5	7	Sports	Non-fiction	6	9	Technology	Non-fiction	<div>Statement 2 - Delete a Category:</div> <div><div>CategoryID</div><div></div><div>Delete Category from Database</div><div>Category Deleted</div><div><table><tr><td>5</td><td>7</td><td>Sports</td><td>Non-fiction</td></tr><tr><td>6</td><td>9</td><td>Technology</td><td>Non-fiction</td></tr></table></div></div>	5	7	Sports	Non-fiction	6	9	Technology	Non-fiction
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Deletion on different Category.	<div><div><div>DELETE FROM category WHERE CategoryID = 9;</div><div><div>Output pane</div><div><div>Data Output</div><div>Explain</div><div>Messages</div><div>History</div></div><div>Query returned successfully: one row affected, 34 msec execution time.</div></div></div><table><tr><td>5</td><td>7</td><td>Sports</td><td>Non-fiction</td></tr><tr><td>6</td><td>11</td><td>Sci-Fi</td><td>fiction</td></tr></table></div> <div><div>Statement 2 - Delete a Category:</div><div><div>CategoryID</div><div></div><div>Delete Category from Database</div></div><div>Category Deleted</div><table><tr><td>5</td><td>7</td><td>Sports</td><td>Non-fiction</td></tr><tr><td>6</td><td>11</td><td>Sci-Fi</td><td>fiction</td></tr></table></div>	5	7	Sports	Non-fiction	6	11	Sci-Fi	fiction	5	7	Sports	Non-fiction	6	11	Sci-Fi	fiction
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Ensure a CategoryID in use is restricted from removal.	<div><div><div>DELETE FROM category WHERE CategoryID = 1;</div><div><div>Output pane</div><div><div>Data Output</div><div>Explain</div><div>Messages</div><div>History</div></div><div>ERROR: update or delete on table "category" violates foreign key constraint "book_categoryid_fk" on table "book" DETAIL: Key (categoryid)=(1) is still referenced from table "book". ***** Error ***** ERROR: update or delete on table "category" violates foreign key constraint "book_categoryid_fk" on table "book" SQL state: 23503 Detail: Key (categoryid)=(1) is still referenced from table "book".</div></div></div></div> <div><div>Statement 2 - Delete a Category:</div><div><div>CategoryID</div><div></div><div>Delete Category from Database</div></div><div>Record NOT Deleted update or delete on table "category" violates foreign key constraint "book_categoryid_fk" on table "book" DETAIL: Key (categoryid)=(1) is still referenced from table "book".</div></div>																
Ensure null CategoryID will return an error.	<div><div><div>DELETE FROM category WHERE CategoryID = ;</div><div><div>Output pane</div><div><div>Data Output</div><div>Explain</div><div>Messages</div><div>History</div></div><div>ERROR: syntax error at or near ";" LINE 3: DELETE FROM category WHERE CategoryID = ; ^ ***** Error ***** ERROR: syntax error at or near ";" SQL state: 42601 Character: 82</div></div></div></div> <div><div>Statement 2 - Delete a Category:</div><div><div>CategoryID</div><div></div><div>Delete Category from Database</div></div><div>Record NOT Deleted Error: Missing Category ID</div></div>																

3	<div>Ensure report runs correctly.</div> <div>(Query calls View 'Books_Summary' and outputs results).</div>	<div><pre>SELECT * FROM Books_Summary UNION ALL SELECT 'Totals:', COUNT(1), '£' SUM(price) FROM Book;</pre></div> <div>Output pane</div> <div><div>Data Output</div><div>Explain</div><div>Messages</div><div>History</div></div> <table><thead><tr><th></th><th>Name character varying</th><th>Number of Titles bigint</th><th>Category Average Price text</th></tr></thead><tbody><tr><td>1</td><td>Art</td><td>4</td><td>£12.24</td></tr><tr><td>2</td><td>Kids</td><td>2</td><td>£7.99</td></tr><tr><td>3</td><td>Computing</td><td>1</td><td>£25.00</td></tr><tr><td>4</td><td>Business</td><td>1</td><td>£10.75</td></tr><tr><td>5</td><td>Sports</td><td>2</td><td>£4.54</td></tr><tr><td>6</td><td>Totals:</td><td>10</td><td>£109.77</td></tr></tbody></table>		Name character varying	Number of Titles bigint	Category Average Price text	1	Art	4	£12.24	2	Kids	2	£7.99	3	Computing	1	£25.00	4	Business	1	£10.75	5	Sports	2	£4.54	6	Totals:	10	£109.77	<div>Statement 3: Book Summary Report</div> <table><thead><tr><th>Category Name</th><th>Number of Titles</th><th>Category Average Price</th></tr></thead><tbody><tr><td>Art</td><td>4</td><td>£12.24</td></tr><tr><td>Kids</td><td>2</td><td>£7.99</td></tr><tr><td>Computing</td><td>1</td><td>£25.00</td></tr><tr><td>Business</td><td>1</td><td>£10.75</td></tr><tr><td>Sports</td><td>2</td><td>£4.54</td></tr><tr><td>Totals:</td><td>10</td><td>£109.77</td></tr></tbody></table> <div>Home</div>	Category Name	Number of Titles	Category Average Price	Art	4	£12.24	Kids	2	£7.99	Computing	1	£25.00	Business	1	£10.75	Sports	2	£4.54	Totals:	10	£109.77																																																																																																																																																																												
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4	<div>Correct operation of query with publisher "Hatchet Liver".</div>	<div><pre>SELECT to_char(OrderDate, 'MM') AS "Month", to_char(OrderDate, 'YYYY') AS "Year", Orderline.BookID, Title, SUM(1) AS "Total Orders", SUM(Quantity) AS "Total Quantity", '£' SUM(UnitSellingPrice * Quantity) AS "Total Order Value", '£' SUM(Price * Quantity) AS "Total Retail Value" FROM Orderline, ShopOrder, Book, Publisher WHERE Orderline.ShopOrderID = ShopOrder.ShopOrderID AND Orderline.BookID = Book.BookID AND Book.PublisherID = Publisher.PublisherID AND Publisher.Name = 'Hatchet Liver' GROUP BY "Month", "Year", Orderline.BookID, Title ORDER BY "Year", "Month"</pre></div> <div>Output pane</div> <div><div>Data Output</div><div>Explain</div><div>Messages</div><div>History</div></div> <table><thead><tr><th></th><th>Month text</th><th>Year text</th><th>bookid integer</th><th>title character varying(50)</th><th>Total Orders bigint</th><th>Total Quantity bigint</th><th>Total Order Value text</th><th>Total Retail Value text</th></tr></thead><tbody><tr><td>1</td><td>06</td><td>2017</td><td>5</td><td>Painting With Bob 2</td><td>1</td><td>4</td><td>£43.96</td><td>£43.96</td></tr><tr><td>2</td><td>10</td><td>2017</td><td>7</td><td>The Hungry Hungry Centipede</td><td>1</td><td>11</td><td>£54.89</td><td>£54.89</td></tr><tr><td>3</td><td>04</td><td>2018</td><td>5</td><td>Painting With Bob 2</td><td>1</td><td>14</td><td>£139.86</td><td>£153.86</td></tr><tr><td>4</td><td>11</td><td>2018</td><td>4</td><td>Painting With Bob Deluxe</td><td>1</td><td>9</td><td>£134.91</td><td>£143.91</td></tr><tr><td>5</td><td>12</td><td>2018</td><td>7</td><td>The Hungry Hungry Centipede</td><td>1</td><td>10</td><td>£44.90</td><td>£49.90</td></tr><tr><td>6</td><td>01</td><td>2019</td><td>2</td><td>Painting With Bob</td><td>1</td><td>5</td><td>£54.50</td><td>£54.95</td></tr><tr><td>7</td><td>02</td><td>2019</td><td>2</td><td>Painting With Bob</td><td>1</td><td>12</td><td>£131.88</td><td>£131.88</td></tr><tr><td>8</td><td>02</td><td>2019</td><td>7</td><td>The Hungry Hungry Centipede</td><td>1</td><td>4</td><td>£19.96</td><td>£19.96</td></tr><tr><td>9</td><td>03</td><td>2019</td><td>2</td><td>Painting With Bob</td><td>1</td><td>1</td><td>£10.99</td><td>£10.99</td></tr><tr><td>10</td><td>03</td><td>2019</td><td>4</td><td>Painting With Bob Deluxe</td><td>2</td><td>5</td><td>£55.79</td><td>£79.95</td></tr><tr><td>11</td><td>04</td><td>2019</td><td>2</td><td>Painting With Bob</td><td>1</td><td>11</td><td>£58.85</td><td>£120.89</td></tr><tr><td>12</td><td>04</td><td>2019</td><td>5</td><td>Painting With Bob 2</td><td>2</td><td>3</td><td>£29.99</td><td>£32.97</td></tr></tbody></table>		Month text	Year text	bookid integer	title character varying(50)	Total Orders bigint	Total Quantity bigint	Total Order Value text	Total Retail Value text	1	06	2017	5	Painting With Bob 2	1	4	£43.96	£43.96	2	10	2017	7	The Hungry Hungry Centipede	1	11	£54.89	£54.89	3	04	2018	5	Painting With Bob 2	1	14	£139.86	£153.86	4	11	2018	4	Painting With Bob Deluxe	1	9	£134.91	£143.91	5	12	2018	7	The Hungry Hungry Centipede	1	10	£44.90	£49.90	6	01	2019	2	Painting With Bob	1	5	£54.50	£54.95	7	02	2019	2	Painting With Bob	1	12	£131.88	£131.88	8	02	2019	7	The Hungry Hungry Centipede	1	4	£19.96	£19.96	9	03	2019	2	Painting With Bob	1	1	£10.99	£10.99	10	03	2019	4	Painting With Bob Deluxe	2	5	£55.79	£79.95	11	04	2019	2	Painting With Bob	1	11	£58.85	£120.89	12	04	2019	5	Painting With Bob 2	2	3	£29.99	£32.97	<div>Statement 4 - Report of Books Ordered from Hatchet Liver:</div> <table><thead><tr><th>Month</th><th>Year</th><th>BookID</th><th>Book Title</th><th>Total Orders</th><th>Total Quantity</th><th>Total Order Value</th><th>Total Retail Value</th></tr></thead><tbody><tr><td>06</td><td>2017</td><td>5</td><td>Painting With Bob 2</td><td>1</td><td>4</td><td>£43.96</td><td>£43.96</td></tr><tr><td>10</td><td>2017</td><td>7</td><td>The Hungry Hungry Centipede</td><td>1</td><td>11</td><td>£54.89</td><td>£54.89</td></tr><tr><td>04</td><td>2018</td><td>5</td><td>Painting With Bob 2</td><td>1</td><td>14</td><td>£139.86</td><td>£153.86</td></tr><tr><td>11</td><td>2018</td><td>4</td><td>Painting With Bob Deluxe</td><td>1</td><td>9</td><td>£134.91</td><td>£143.91</td></tr><tr><td>12</td><td>2018</td><td>7</td><td>The Hungry Hungry Centipede</td><td>1</td><td>10</td><td>£44.90</td><td>£49.90</td></tr><tr><td>01</td><td>2019</td><td>2</td><td>Painting With Bob</td><td>1</td><td>5</td><td>£54.50</td><td>£54.95</td></tr><tr><td>02</td><td>2019</td><td>2</td><td>Painting With Bob</td><td>1</td><td>12</td><td>£131.88</td><td>£131.88</td></tr><tr><td>02</td><td>2019</td><td>7</td><td>The Hungry Hungry Centipede</td><td>1</td><td>4</td><td>£19.96</td><td>£19.96</td></tr><tr><td>03</td><td>2019</td><td>2</td><td>Painting With Bob</td><td>1</td><td>1</td><td>£10.99</td><td>£10.99</td></tr><tr><td>03</td><td>2019</td><td>4</td><td>Painting With Bob Deluxe</td><td>2</td><td>5</td><td>£55.79</td><td>£79.95</td></tr><tr><td>04</td><td>2019</td><td>2</td><td>Painting With Bob</td><td>1</td><td>11</td><td>£58.85</td><td>£120.89</td></tr><tr><td>04</td><td>2019</td><td>5</td><td>Painting With Bob 2</td><td>2</td><td>3</td><td>£29.99</td><td>£32.97</td></tr></tbody></table> <div>Home</div>	Month	Year	BookID	Book Title	Total Orders	Total Quantity	Total Order Value	Total Retail Value	06	2017	5	Painting With Bob 2	1	4	£43.96	£43.96	10	2017	7	The Hungry Hungry Centipede	1	11	£54.89	£54.89	04	2018	5	Painting With Bob 2	1	14	£139.86	£153.86	11	2018	4	Painting With Bob Deluxe	1	9	£134.91	£143.91	12	2018	7	The Hungry Hungry Centipede	1	10	£44.90	£49.90	01	2019	2	Painting With Bob	1	5	£54.50	£54.95	02	2019	2	Painting With Bob	1	12	£131.88	£131.88	02	2019	7	The Hungry Hungry Centipede	1	4	£19.96	£19.96	03	2019	2	Painting With Bob	1	1	£10.99	£10.99	03	2019	4	Painting With Bob Deluxe	2	5	£55.79	£79.95	04	2019	2	Painting With Bob	1	11	£58.85	£120.89	04	2019	5	Painting With Bob 2	2	3	£29.99	£32.97
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5	12	2018	7	The Hungry Hungry Centipede	1	10	£44.90	£49.90																																																																																																																																																																																																																								
6	01	2019	2	Painting With Bob	1	5	£54.50	£54.95																																																																																																																																																																																																																								
7	02	2019	2	Painting With Bob	1	12	£131.88	£131.88																																																																																																																																																																																																																								
8	02	2019	7	The Hungry Hungry Centipede	1	4	£19.96	£19.96																																																																																																																																																																																																																								
9	03	2019	2	Painting With Bob	1	1	£10.99	£10.99																																																																																																																																																																																																																								
10	03	2019	4	Painting With Bob Deluxe	2	5	£55.79	£79.95																																																																																																																																																																																																																								
11	04	2019	2	Painting With Bob	1	11	£58.85	£120.89																																																																																																																																																																																																																								
12	04	2019	5	Painting With Bob 2	2	3	£29.99	£32.97																																																																																																																																																																																																																								
Month	Year	BookID	Book Title	Total Orders	Total Quantity	Total Order Value	Total Retail Value																																																																																																																																																																																																																									
06	2017	5	Painting With Bob 2	1	4	£43.96	£43.96																																																																																																																																																																																																																									
10	2017	7	The Hungry Hungry Centipede	1	11	£54.89	£54.89																																																																																																																																																																																																																									
04	2018	5	Painting With Bob 2	1	14	£139.86	£153.86																																																																																																																																																																																																																									
11	2018	4	Painting With Bob Deluxe	1	9	£134.91	£143.91																																																																																																																																																																																																																									
12	2018	7	The Hungry Hungry Centipede	1	10	£44.90	£49.90																																																																																																																																																																																																																									
01	2019	2	Painting With Bob	1	5	£54.50	£54.95																																																																																																																																																																																																																									
02	2019	2	Painting With Bob	1	12	£131.88	£131.88																																																																																																																																																																																																																									
02	2019	7	The Hungry Hungry Centipede	1	4	£19.96	£19.96																																																																																																																																																																																																																									
03	2019	2	Painting With Bob	1	1	£10.99	£10.99																																																																																																																																																																																																																									
03	2019	4	Painting With Bob Deluxe	2	5	£55.79	£79.95																																																																																																																																																																																																																									
04	2019	2	Painting With Bob	1	11	£58.85	£120.89																																																																																																																																																																																																																									
04	2019	5	Painting With Bob 2	2	3	£29.99	£32.97																																																																																																																																																																																																																									

Correct operation for publisher "Dodo".

```
SELECT to_char(OrderDate, 'MM') AS "Month",
       to_char(OrderDate, 'YYYY') AS "Year",
       Orderline.BookID,
       Title,
       SUM(1) AS "Total Orders",
       SUM(Quantity) AS "Total Quantity",
       '$' || SUM(UnitSellingPrice * Quantity) AS "Total Order Value",
       '$' || SUM(Price * Quantity) AS "Total Retail Value"
FROM Orderline, ShopOrder, Book, Publisher
WHERE Orderline.ShopOrderID = ShopOrder.ShopOrderID
      AND Orderline.BookID = Book.BookID
      AND Book.PublisherID = Publisher.PublisherID
      AND Publisher.Name = 'Dodo'
GROUP BY "Month", "Year", Orderline.BookID, Title
ORDER BY "Year", "Month"
```

Output pane

Data Output

Explain

Messages

History

	Month text	Year text	bookid integer	title character varying(50)	Total Orders bigint	Total Quantity bigint	Total Order Value text	Total Retail Value text
1	04	2018	12	Best Goals of 2015 in Pictures	1	7	£31.43	£31.43
2	10	2018	11	Best Goals of 2016 in Pictures	1	1	£4.59	£4.59
3	11	2018	11	Best Goals of 2016 in Pictures	1	8	£36.72	£36.72
4	01	2019	11	Best Goals of 2016 in Pictures	1	6	£21.30	£27.54
5	02	2019	11	Best Goals of 2016 in Pictures	1	7	£23.45	£32.13
6	02	2019	12	Best Goals of 2015 in Pictures	1	2	£7.10	£8.98
7	03	2019	12	Best Goals of 2015 in Pictures	1	2	£6.50	£8.98

Statement 4 - Report of Books Ordered from Dodo:

Month	Year	BookID	Book Title	Total Orders	Total Quantity	Total Order Value	Total Retail Value
04	2018	12	Best Goals of 2015 in Pictures	1	7	£31.43	£31.43
10	2018	11	Best Goals of 2016 in Pictures	1	1	£4.59	£4.59
11	2018	11	Best Goals of 2016 in Pictures	1	8	£36.72	£36.72
01	2019	11	Best Goals of 2016 in Pictures	1	6	£21.30	£27.54
02	2019	11	Best Goals of 2016 in Pictures	1	7	£23.45	£32.13
02	2019	12	Best Goals of 2015 in Pictures	1	2	£7.10	£8.98
03	2019	12	Best Goals of 2015 in Pictures	1	2	£6.50	£8.98

Home

Ensure no results appear when invalid publisher name is used.

```
SELECT to_char(OrderDate, 'MM') AS "Month",
       to_char(OrderDate, 'YYYY') AS "Year",
       Orderline.BookID,
       Title,
       SUM(1) AS "Total Orders",
       SUM(Quantity) AS "Total Quantity",
       '$' || SUM(UnitSellingPrice * Quantity) AS "Total Order Value",
       '$' || SUM(Price * Quantity) AS "Total Retail Value"
FROM Orderline, ShopOrder, Book, Publisher
WHERE Orderline.ShopOrderID = ShopOrder.ShopOrderID
      AND Orderline.BookID = Book.BookID
      AND Book.PublisherID = Publisher.PublisherID
      AND Publisher.Name = 'Invalid Name'
GROUP BY "Month", "Year", Orderline.BookID, Title
ORDER BY "Year", "Month"
```

Output pane

Data Output

Explain

Messages

History

	Month text	Year text	bookid integer	title character varying(50)	Total Orders bigint	Total Quantity bigint	Total Order Value text	Total Retail Value text
--	---------------	--------------	-------------------	--------------------------------	------------------------	--------------------------	---------------------------	----------------------------

Statement 4 - Report of Books Ordered for given Publisher:

Publisher Name

Retrieve Report

No data found

Testing for missing Publisher Name.

```
SELECT to_char(OrderDate, 'MM') AS "Month",
       to_char(OrderDate, 'YYYY') AS "Year",
       Orderline.BookID,
       Title,
       SUM(1) AS "Total Orders",
       SUM(Quantity) AS "Total Quantity",
       '£' || SUM(UnitSellingPrice * Quantity) AS "Total Order Value",
       '£' || SUM(Price * Quantity) AS "Total Retail Value"
FROM Orderline, ShopOrder, Book, Publisher
WHERE Orderline.ShopOrderID = ShopOrder.ShopOrderID
      AND Orderline.BookID = Book.BookID
      AND Book.PublisherID = Publisher.PublisherID
      AND Publisher.Name = ''
GROUP BY "Month", "Year", Orderline.BookID, Title
ORDER BY "Year", "Month";
```

Output pane

Data Output

Explain

Messages

History

	Month text	Year text	bookid integer	title character varying(50)	Total Orders bigint	Total Quantity bigint	Total Order Value text	Total Retail Value text
--	---------------	--------------	-------------------	--------------------------------	------------------------	--------------------------	---------------------------	----------------------------

Statement 4 - Report of Books Ordered for given Publisher:

Publisher Name

Retrieve Report

No data found
Error: Missing Publisher Name

5

Testing correct operation with BookID 2.

```
WITH Order_History ("Date", "Order Title", "Retail Price", "Unit Price",
                    "Total Quantity", "Order Value", "Shop Name") AS (
  SELECT OrderDate,
         Title,
         '£' || Price,
         '£' || UnitSellingPrice,
         Quantity,
         UnitSellingPrice * Quantity,
         Name
  FROM Orderline, ShopOrder, Book, Shop
  WHERE Orderline.ShopOrderID = ShopOrder.ShopOrderID
        AND Orderline.BookID = Book.BookID
        AND ShopOrder.ShopID = Shop.ShopID
        AND Book.BookID = 2)
SELECT * FROM Order_History
UNION ALL
SELECT NULL, 'Totals:', NULL, NULL, SUM("Total Quantity"), SUM("Order Value"), NULL
FROM Order_History
ORDER BY "Date";
```

Output pane

Data Output

Explain

Messages

History

	Date date	Order Title character varying	Retail Price text	Unit Price text	Total Quantity bigint	Order Value numeric	Shop Name character varying
1	2017-10-07	The Hungry Hungry Centipede	£4.99	£4.99	11	54.89	Kings Cross London Bookshop
2	2018-12-28	The Hungry Hungry Centipede	£4.99	£4.49	10	44.90	Norwich Books North
3	2019-02-28	The Hungry Hungry Centipede	£4.99	£4.99	4	19.96	Kings Cross London Bookshop
4		Totals:			25	119.75	

Statement 5 - Order History Report for book ID 2:

Date	Order Title	Retail Price	Unit Price	Total Quantity	Order Value	Shop Name
2019-01-17	Painting With Bob	£10.99	£10.90	5	54.50	Happy Books - Ipswich
2019-02-12	Painting With Bob	£10.99	£10.99	12	131.88	Happy Books - Ipswich
2019-03-16	Painting With Bob	£10.99	£10.99	1	10.99	Norwich Books South
2019-04-29	Painting With Bob	£10.99	£5.35	11	58.85	Norwich Books South
	Totals:			29	256.22	

Home

Testing correct operation with BookID 7.

WITH Order_History ("Date", "Order Title", "Retail Price","Unit Price", "Total Quantity", "Order Value", "Shop Name") AS (
SELECT OrderDate,
Title,
'£' || Price,
'£' || UnitSellingPrice,
Quantity,
UnitSellingPrice * Quantity,
Name
FROM Orderline, ShopOrder, Book, Shop
WHERE Orderline.ShopOrderID = ShopOrder.ShopOrderID
AND Orderline.BookID = Book.BookID
AND ShopOrder.ShopID = Shop.ShopID
AND Book.BookID = 7)
SELECT * FROM Order_History
UNION ALL
SELECT NULL, 'Totals:', NULL, NULL, SUM("Total Quantity"), SUM("Order Value"), NULL
FROM Order_History
ORDER BY "Date";

Output pane

Data Output

Explain

Messages

History

	Date date	Order Title character varying	Retail Price text	Unit Price text	Total Quantity bigint	Order Value numeric	Shop Name character varying
1	2017-10-07	The Hungry Hungry Centipede	£4.99	£4.99	11	54.89	Kings Cross London Bookshop
2	2018-12-28	The Hungry Hungry Centipede	£4.99	£4.49	10	44.90	Norwich Books North
3	2019-02-28	The Hungry Hungry Centipede	£4.99	£4.99	4	19.96	Kings Cross London Bookshop
4		Totals:			25	119.75	

Statement 5 - Order History Report for book ID 7:

Date	Order Title	Retail Price	Unit Price	Total Quantity	Order Value	Shop Name
2017-10-07	The Hungry Hungry Centipede	£4.73	£4.99	11	54.89	Kings Cross London Bookshop
2018-12-28	The Hungry Hungry Centipede	£4.73	£4.49	10	44.90	Norwich Books North
2019-02-28	The Hungry Hungry Centipede	£4.73	£4.99	4	19.96	Kings Cross London Bookshop
Totals:				25	119.75	

Home

Testing with BookID 6, which hasn't been ordered.

WITH Order_History ("Date", "Order Title", "Retail Price","Unit Price", "Total Quantity", "Order Value", "Shop Name") AS (
SELECT OrderDate,
Title,
'£' || Price,
'£' || UnitSellingPrice,
Quantity,
UnitSellingPrice * Quantity,
Name
FROM Orderline, ShopOrder, Book, Shop
WHERE Orderline.ShopOrderID = ShopOrder.ShopOrderID
AND Orderline.BookID = Book.BookID
AND ShopOrder.ShopID = Shop.ShopID
AND Book.BookID = 6)
SELECT * FROM Order_History
UNION ALL
SELECT NULL, 'Totals:', NULL, NULL, SUM("Total Quantity"), SUM("Order Value"), NULL
FROM Order_History
ORDER BY "Date";

Output pane

Data Output

Explain

Messages

History

	Date date	Order Title character varying	Retail Price text	Unit Price text	Total Quantity bigint	Order Value numeric	Shop Name character varying
1		Totals:					

Statement 5 - Order History Report for book ID 6:

Date	Order Title	Retail Price	Unit Price	Total Quantity	Order Value	Shop Name
	Totals:					

Home

Testing BookID
100 (non-
existent BookID).

```
WITH Order_History ("Date", "Order Title", "Retail Price", "Unit Price",
    "Total Quantity", "Order Value", "Shop Name") AS (
    SELECT OrderDate,
        Title,
        '£' || Price,
        '£' || UnitSellingPrice,
        Quantity,
        UnitSellingPrice * Quantity,
        Name
    FROM Orderline, ShopOrder, Book, Shop
    WHERE Orderline.ShopOrderID = ShopOrder.ShopOrderID
        AND Orderline.BookID = Book.BookID
        AND ShopOrder.ShopID = Shop.ShopID
        AND Book.BookID = 100)

SELECT * FROM Order_History
UNION ALL
SELECT NULL, 'Totals:', NULL, NULL, SUM("Total Quantity"), SUM("Order Value"), NULL
    FROM Order_History
ORDER BY "Date";
```

Output pane

Data Output Explain Messages History

Explain Messages History

Messages History

History

[illegible]

Date	Order Title	Retail Price	Unit Price	Total Quantity	Order Value	Shop Name
------	-------------	--------------	------------	----------------	-------------	-----------

Order Title	Retail Price	Unit Price	Total Quantity	Order Value	Shop Name
-------------	--------------	------------	----------------	-------------	-----------

Retail Price	Unit Price	Total Quantity	Order Value	Shop Name
--------------	------------	----------------	-------------	-----------

Unit Price	Total Quantity	Order Value	Shop Name
------------	----------------	-------------	-----------

Total Quantity	Order Value	Shop Name	
----------------	-------------	-----------	--

Order Value	Shop Name
-------------	-----------

Shop Name	
-----------	--

--	--

	date	character varying	text	text	bigint	numeric	character varying
1							

date	character varying	text	text	bigint	numeric	character varying

character varying	text	text	bigint	numeric	character varying

text	text	bigint	numeric	character varying

text	bigint	numeric	character varying

bigint	numeric	character varying

numeric	character varying

character varying	
-------------------	--

arying	
--------	--

Statement 5 - Order History Report for book ID 100:

Date	Order Title	Retail Price	Unit Price	Total Quantity	Order Value	Shop Name
	Totals:					

[Home](#)[Home](#)

Testing with empty BookID.

WITH Order_History ("Date", "Order Title", "Retail Price", "Unit Price", "Total Quantity", "Order Value", "Shop Name") AS (
SELECT OrderDate,
Title,
'£' || Price,
'£' || UnitSellingPrice,
Quantity,
UnitSellingPrice * Quantity,
Name
FROM Orderline, ShopOrder, Book, Shop
WHERE Orderline.ShopOrderID = ShopOrder.ShopOrderID
AND Orderline.BookID = Book.BookID
AND ShopOrder.ShopID = Shop.ShopID
AND Book.BookID =)
SELECT * FROM Order_History
UNION ALL
SELECT NULL, 'Totals:', NULL, NULL, SUM("Total Quantity"), SUM("Order Value"), NULL
FROM Order_History
ORDER BY "Date";

Output pane

Data Output

Explain

Messages

History

ERROR: syntax error at or near ")"
LINE 16: AND Book.BookID =)
^
***** Error *****

ERROR: syntax error at or near ")"
SQL state: 42601
Character: 486

Statement 5 - Order History for given Book:

BookID

Retrieve Report

No data found
Error: Missing Book ID

6

Testing correct operation with large date range.

WITH Sales_Report ("Staff ID", "Name", "Units Sold", "Value of Orders") AS (
SELECT SalesRep.SalesRepID AS s,
SalesRep.Name,
SUM(quantity),
SUM(UnitSellingPrice * Quantity) AS v
FROM SalesRep
LEFT JOIN (Orderline
JOIN ShopOrder
ON (Orderline.ShopOrderID = ShopOrder.ShopOrderID))
ON (SalesRep.SalesRepID = ShopOrder.SalesRepID)
AND OrderDate >= '2018-01-01'
AND OrderDate <= '2019-03-31'
GROUP BY s
ORDER BY v DESC NULLS LAST)
SELECT * FROM Sales_Report
UNION ALL
SELECT NULL, 'Totals:', SUM("Units Sold"), SUM("Value of Orders")
FROM Sales_Report;

Output pane

Data Output

Explain

Messages

History

	Staff ID integer	Name character varying	Units Sold numeric	Value of Orders numeric
1	1	Mary Smith	31	523.53
2	9	Olivia Davies	20	246.63
3	6	Harry Davies	13	154.97
4	7	James Smith	14	139.86
5	8	Emily Brown	21	120.70
6	10	Sarah Jones	13	50.51
7	3	William Taylor	2	6.50
8	4	John Williams	1	4.59
9	2	Sarah Jones		
10		Totals:	115	1247.29

Statement 6 - Sales Performance between 2018-01-01 and 2019-03-31:

Staff ID	Name	Units Sold	Value of Orders
1	Mary Smith	31	523.53
9	Olivia Davies	20	246.63
6	Harry Davies	13	154.97
7	James Smith	14	139.86
8	Emily Brown	21	120.70
10	Sarah Jones	13	50.51
3	William Taylor	2	6.50
4	John Williams	1	4.59
2	Sarah Jones		
Totals:		115	1247.29

Home

Testing with smaller date range.

WITH Sales_Report ("Staff ID", "Name", "Units Sold", "Value of Orders") AS (

SELECT SalesRep.SalesRepID AS s,
SalesRep.Name,
SUM(quantity),
SUM(UnitSellingPrice * Quantity) AS v

FROM SalesRep

LEFT JOIN (Orderline
JOIN ShopOrder
ON (Orderline.ShopOrderID = ShopOrder.ShopOrderID))
ON (SalesRep.SalesRepID = ShopOrder.SalesRepID)
AND OrderDate >= '2019-01-01'
AND OrderDate <= '2019-02-25'

GROUP BY s
ORDER BY v DESC NULLS LAST)

SELECT * FROM Sales_Report

UNION ALL

SELECT NULL, 'Totals:', SUM("Units Sold"), SUM("Value of Orders")
FROM Sales_Report;

Output pane

Data Output

Explain

Messages

History

	Staff ID integer	Name character varying	Units Sold numeric	Value of Orders numeric
1	1	Mary Smith	12	131.88
2	8	Emily Brown	11	75.80
3	9	Olivia Davies	3	75.00
4	4	John Williams		
5	3	William Taylor		
6	10	Sarah Jones		
7	7	James Smith		
8	2	Sarah Jones		
9	6	Harry Davies		
10		Totals:	26	282.68

Statement 6 - Sales Performance between 2019-01-01 and 2019-02-25:

Staff ID	Name	Units Sold	Value of Orders
1	Mary Smith	12	131.88
8	Emily Brown	11	75.80
9	Olivia Davies	3	75.00
4	John Williams		
3	William Taylor		
10	Sarah Jones		
7	James Smith		
2	Sarah Jones		
6	Harry Davies		
Totals:		26	282.68

Home

Incorrect date format.

WITH Sales_Report ("Staff ID", "Name", "Units Sold", "Value of Orders") AS (
SELECT SalesRep.SalesRepID AS s,
SalesRep.Name,
SUM(quantity),
SUM(UnitSellingPrice * Quantity) AS v
FROM SalesRep
LEFT JOIN (Orderline
JOIN ShopOrder
ON (Orderline.ShopOrderID = ShopOrder.ShopOrderID))
ON (SalesRep.SalesRepID = ShopOrder.SalesRepID)
AND OrderDate >= '2019-01-01'
AND OrderDate <= '2019-02-32'
GROUP BY s
ORDER BY v DESC NULLS LAST)
SELECT * FROM Sales_Report
UNION ALL
SELECT NULL, 'Totals:', SUM("Units Sold"), SUM("Value of Orders")
FROM Sales_Report;

Output pane

Data Output

Explain

Messages

History

ERROR: date/time field value out of range: "2019-02-32"
LINE 14: AND OrderDate <= '2019-02-32'
^
HINT: Perhaps you need a different "datestyle" setting.
***** Error *****

ERROR: date/time field value out of range: "2019-02-32"
SQL state: 22008
Hint: Perhaps you need a different "datestyle" setting.
Character: 453

Statement 6 - Sales Rep Performance Re

Start Date

01/01/2019

End Date

dd/mm/yyyy

24	September	2014
25	October	2015
26	November	2016
27	December	2017
28	January	2018
01	February	2019
02	March	2020
03	April	2021
04	May	2022
05	June	2023
06	July	2024

(Impossible due to form input restriction).

EndDate before
StartDate.

```
WITH Sales_Report ("Staff ID", "Name", "Units Sold", "Value of Orders") AS (  
    SELECT SalesRep.SalesRepID AS s,  
           SalesRep.Name,  
           SUM(quantity),  
           SUM(UnitSellingPrice * Quantity) AS v  
    FROM SalesRep  
    LEFT JOIN (Orderline  
              JOIN ShopOrder  
              ON (Orderline.ShopOrderID = ShopOrder.ShopOrderID))  
    ON (SalesRep.SalesRepID = ShopOrder.SalesRepID)  
    AND OrderDate >= '2019-03-01'  
    AND OrderDate <= '2019-02-01'  
    GROUP BY s  
    ORDER BY v DESC NULLS LAST)  
SELECT * FROM Sales_Report  
UNION ALL  
SELECT NULL, 'Totals:', SUM("Units Sold"), SUM("Value of Orders")  
    FROM Sales_Report;
```

Output pane

	Staff ID integer	Name character varying	Units Sold numeric	Value of Orders numeric
1	10	Sarah Jones		
2	2	Sarah Jones		
3	8	Emily Brown		
4	6	Harry Davies		
5	4	John Williams		
6	1	Mary Smith		
7	3	William Taylor		
8	9	Olivia Davies		
9	7	James Smith		
10		Totals:		

Statement 6 - Sales Performance between 2019-03-01 and 2019-02-01:

Staff ID	Name	Units Sold	Value of Orders
10	Sarah Jones		
2	Sarah Jones		
8	Emily Brown		
6	Harry Davies		
4	John Williams		
1	Mary Smith		
3	William Taylor		
9	Olivia Davies		
7	James Smith		
Totals:			

Home

Undefined
EndDate.

```
WITH Sales_Report ("Staff ID", "Name", "Units Sold", "Value of Orders") AS (  
    SELECT SalesRep.SalesRepID AS s,  
           SalesRep.Name,  
           SUM(quantity),  
           SUM(UnitSellingPrice * Quantity) AS v  
    FROM SalesRep  
    LEFT JOIN (Orderline  
              JOIN ShopOrder  
              ON (Orderline.ShopOrderID = ShopOrder.ShopOrderID))  
    ON (SalesRep.SalesRepID = ShopOrder.SalesRepID)  
    AND OrderDate >= '2019-03-01'  
    AND OrderDate <= NULL  
    GROUP BY s  
    ORDER BY v DESC NULLS LAST)  
SELECT * FROM Sales_Report  
UNION ALL  
SELECT NULL, 'Totals:', SUM("Units Sold"), SUM("Value of Orders")
```

Output pane

	Staff ID integer	Name character varying	Units Sold numeric	Value of Orders numeric
1	10	Sarah Jones		
2	2	Sarah Jones		
3	8	Emily Brown		
4	6	Harry Davies		
5	4	John Williams		
6	1	Mary Smith		
7	3	William Taylor		
8	9	Olivia Davies		
9	7	James Smith		
10		Totals:		

Statement 6 - Sales Rep Performance Report:

Start Date

dd/mm/yyyy

End Date

dd/mm/yyyy

Retrieve Report

No data found
Error: Missing End Date

Undefined start and end dates.

WITH Sales_Report ("Staff ID", "Name", "Units Sold", "Value of Orders") AS (

SELECT SalesRep.SalesRepID AS s,
SalesRep.Name,
SUM(quantity),
SUM(UnitSellingPrice * Quantity) AS v

FROM SalesRep

LEFT JOIN (Orderline
JOIN ShopOrder
ON (Orderline.ShopOrderID = ShopOrder.ShopOrderID))
ON (SalesRep.SalesRepID = ShopOrder.SalesRepID)
AND OrderDate >= NULL
AND OrderDate <= NULL

GROUP BY s
ORDER BY v DESC NULLS LAST)

SELECT * FROM Sales_Report

UNION ALL

SELECT NULL, 'Totals:', SUM("Units Sold"), SUM("Value of Orders")
FROM Sales_Report;

Output pane

Data Output

Explain

Messages

History

	Staff ID integer	Name character varying	Units Sold numeric	Value of Orders numeric
1	10	Sarah Jones		
2	2	Sarah Jones		
3	8	Emily Brown		
4	6	Harry Davies		
5	4	John Williams		
6	1	Mary Smith		
7	3	William Taylor		
8	9	Olivia Davies		
9	7	James Smith		
10		Totals:		

7

Apply 10% discount to books in CategoryID 7 and return a list of books affected.

WITH t AS (

UPDATE Book

SET Price = (Price * ((100.00 - 10.00) / 100.00)) --10% discount

WHERE CategoryID = 7

RETURNING BookID, Title, '£' || Price AS "New Price")

SELECT * FROM t; -- Returns the books after discount.

Output pane

Data Output

Explain

Messages

History

	bookid integer	title character varying(50)	New Price text
1	11	Best Goals of 2016 in Pictures	£4.13
2	12	Best Goals of 2015 in Pictures	£4.04

Statement 6 - Sales Rep Performance Report:

Start Date

dd/mm/yyyy

End Date

dd/mm/yyyy

Retrieve Report

No data found
Error: Missing Start Date

Statement 7 - Apply 10% Discount to Books in Category 7

The discount above has been applied to the following records:

BookID	Title	New Price
11	Best Goals of 2016 in Pictures	£4.13
12	Best Goals of 2015 in Pictures	£4.04

Home

Apply 5.25% discount to books in CategoryID 3 and return list of books affected.

WITH t AS (

UPDATE Book

SET Price = (Price * ((100.00 - 5.25) / 100.00)) --5.25% discount

WHERE CategoryID = 3

RETURNING BookID, Title, '£' || Price AS "New Price"

SELECT * FROM t; -- Returns the books after discount.

Output pane

Data Output

Explain

Messages

History

	bookid	title	New Price
	integer	character varying(50)	text
1	5	Painting With Bob 2	£10.41
2	7	The Hungry Hungry Centipede	£4.73

Statement 7 - Apply 5.25% Discount to Books in Category 3

The discount above has been applied to the following records:

BookID	Title	New Price
5	Painting With Bob 2	£10.41
7	The Hungry Hungry Centipede	£4.73

Home

Apply a 101% discount to books with a CategoryID of 1 (Book Price Domain Constraint Test).

(CHECK (Price >= 0)).

WITH t AS (

UPDATE Book

SET Price = (Price * ((100.00 - 101) / 100.00)) -- 101% discount.

WHERE CategoryID = 1

RETURNING BookID, Title, '£' || Price AS "New Price"

SELECT * FROM t; -- Returns the books after discount.

Output pane

Data Output

Explain

Messages

History

ERROR: new row for relation "book" violates check constraint "book_price_check"

DETAIL: Failing row contains (2, Painting With Bob, -0.11, 1, 1).

***** Error *****

ERROR: new row for relation "book" violates check constraint "book_price_check"

SQL state: 23514

Detail: Failing row contains (2, Painting With Bob, -0.11, 1, 1).

Statement 7 - Apply Discount to Books in given Category:

CategoryID

1

Discount Percentage

101

You must enter a value between 0 and 100

(Form input restriction).

Apply a 50% discount to books with CategoryID of 100 (non-existent CategoryID).

WITH t AS (

UPDATE Book

SET Price = (Price * ((100.00 - 50) / 100.00)) -- 50% discount.

WHERE CategoryID = 100|

RETURNING BookID, Title, '£' || Price AS "New Price"

SELECT * FROM t; -- Returns the books after discount.

Output pane

Data Output

Explain

Messages

History

	bookid	title	New Price
	integer	character varying(50)	text

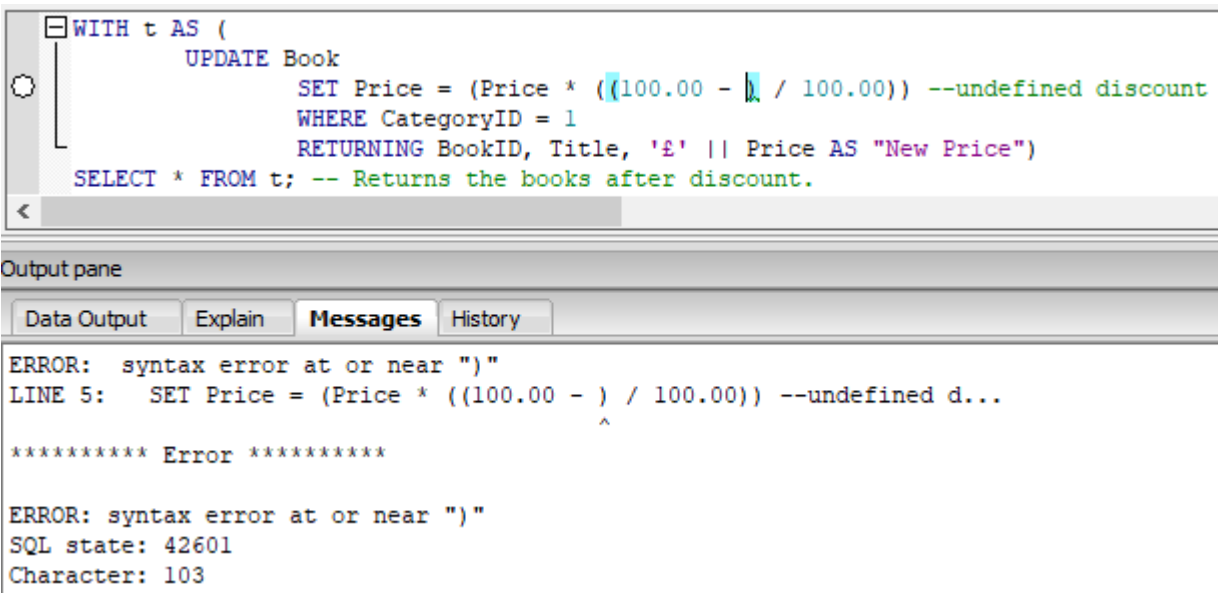
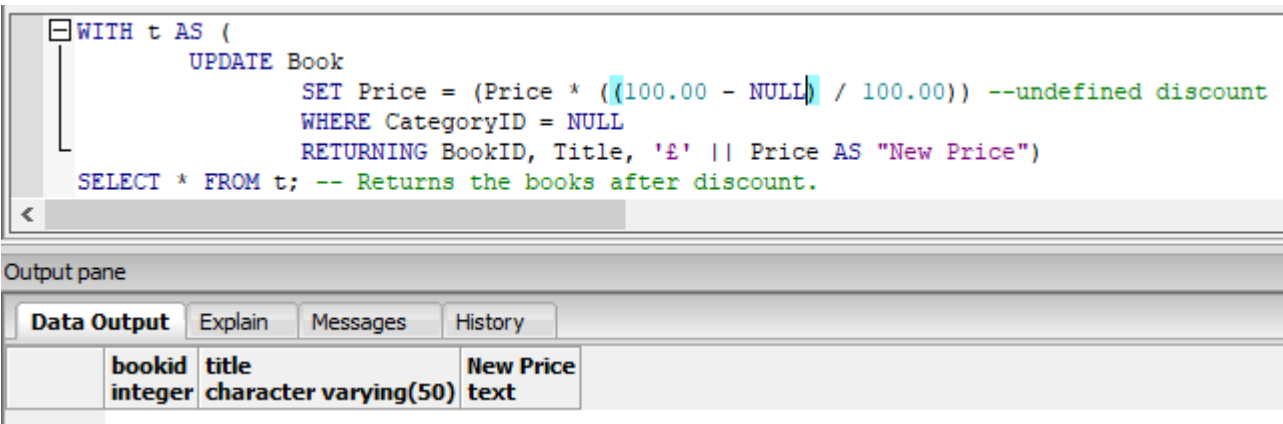
Statement 7 - Apply Discount to Books in given Category:

CategoryID

Discount Percentage

Apply Discount

CategoryID not found

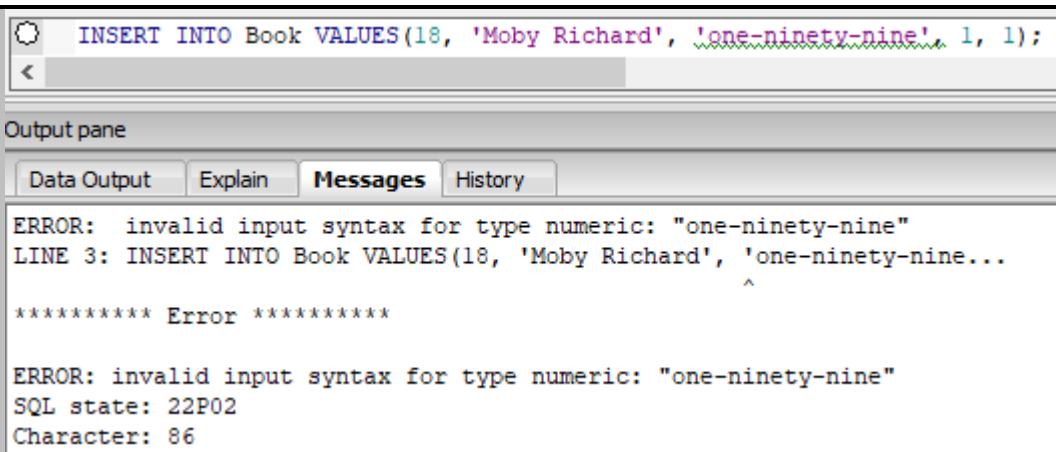
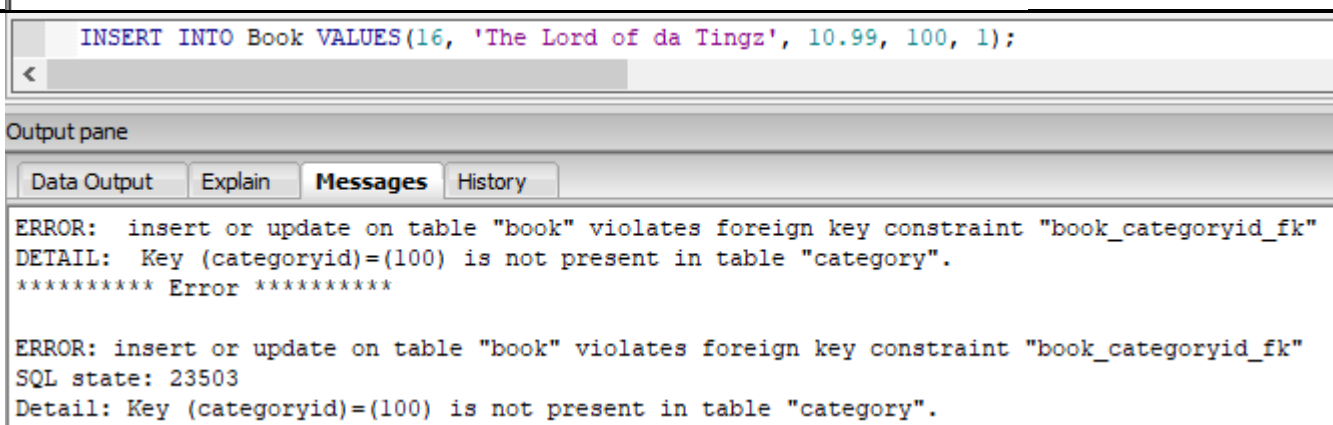
Undefined discount amount applied to books in CategoryID 1.	 <p>The screenshot shows a SQL query in a text editor with the following code:</p> <pre>WITH t AS (UPDATE Book SET Price = (Price * ((100.00 - WHERE CategoryID = 1 RETURNING BookID, Title, '£' Price AS "New Price") SELECT * FROM t; -- Returns the books after discount.</pre> <p>The output pane shows the following error message:</p> <pre>ERROR: syntax error at or near ")" LINE 5: SET Price = (Price * ((100.00 -) / 100.00)) --undefined d... ^ ***** Error ***** ERROR: syntax error at or near ")" SQL state: 42601 Character: 103</pre>	<p>Statement 7 - Apply Discount to Books in given Category:</p> <div><div>CategoryID</div><div>Discount Percentage</div><div>Apply Discount</div></div> <p>Discount NOT applied Error: Missing Discount value</p>
Undefined CategoryID and Discount amount.	 <p>The screenshot shows a SQL query in a text editor with the following code:</p> <pre>WITH t AS (UPDATE Book SET Price = (Price * ((100.00 - NULL WHERE CategoryID = NULL RETURNING BookID, Title, '£' Price AS "New Price") SELECT * FROM t; -- Returns the books after discount.</pre> <p>The output pane shows the following error message:</p> <pre>ERROR: syntax error at or near ")" LINE 5: SET Price = (Price * ((100.00 - NULL ^ ***** Error ***** ERROR: syntax error at or near ")" SQL state: 42601 Character: 103</pre>	<p>Statement 7 - Apply Discount to Books in given Category:</p> <div><div>CategoryID</div><div>Discount Percentage</div><div>Apply Discount</div></div> <p>Discount NOT applied Error: Missing Category ID</p>

Additional Trigger, Domain and Referential Integrity Tests:

These tests did not fit in under the tasks above but serve to demonstrate the additional constraints added to the database for handling data input.

Test Type	Functionality Being Tested	SQL Query and Test Result (pgAdmin)					
Trigger	Orderline - Ensure UnitSellingPrice is set to BookPrice if UnitSellingPrice's initial value is greater than BookPrice.	<div><div><pre>INSERT INTO Orderline VALUES(3, 10, 1, 100.00);</pre></div><div><div>Output pane</div><div><div>Data Output</div><div>Explain</div><div>Messages</div><div>History</div></div><div>Query returned successfully: one row affected, 32 msec execution time.</div></div><div>Orderline table entry:</div><table><tr><td>6</td><td>3</td><td>10</td><td>1</td><td>25.00</td></tr></table></div>	6	3	10	1	25.00
6	3	10	1	25.00			

Custom Domain Constraint	<p>OrderDate breaking Domain Constraint 'shoporder_orderdate_min_check'.</p> <p>(CHECK (OrderDate >= '1970-01-01'), Unix epoch chosen for simplicity.)</p>	<div><div>INSERT INTO ShopOrder VALUES(11, '1958-10-14', 1, 1);</div><div></div><div>Output pane</div><div><div>Data Output</div><div>Explain</div><div>Messages</div><div>History</div></div><div>ERROR: new row for relation "shoporder" violates check constraint "shoporder_orderdate_min_check" DETAIL: Failing row contains (11, 1958-10-14, 1, 1). ***** Error *****</div><div>ERROR: new row for relation "shoporder" violates check constraint "shoporder_orderdate_min_check" SQL state: 23514 Detail: Failing row contains (11, 1958-10-14, 1, 1).</div></div>
Custom Domain Constraint	<p>Quantity breaking domain constraint 'orderline_quantity_check'.</p> <p>(CHECK (Quantity > 0), ensures the quantity of all orders is 1 or greater).</p>	<div><div>INSERT INTO Orderline VALUES(2, 2, -5, 9.95);</div><div></div><div>Output pane</div><div><div>Data Output</div><div>Explain</div><div>Messages</div><div>History</div></div><div>ERROR: new row for relation "orderline" violates check constraint "orderline_quantity_check" DETAIL: Failing row contains (2, 2, -5, 9.95). ***** Error *****</div><div>ERROR: new row for relation "orderline" violates check constraint "orderline_quantity_check" SQL state: 23514 Detail: Failing row contains (2, 2, -5, 9.95).</div></div>
Custom Domain Constraint	<p>UnitSellingPrice breaking domain constraint 'orderline_unitsellingprice_check'.</p> <p>(CHECK (UnitSellingPrice >= 0), ensures the price the book is being sold at is positive).</p>	<div><div>INSERT INTO Orderline VALUES(5, 8, 3, -1.99);</div><div></div><div>Output pane</div><div><div>Data Output</div><div>Explain</div><div>Messages</div><div>History</div></div><div>ERROR: new row for relation "orderline" violates check constraint "orderline_unitsellingprice_check" DETAIL: Failing row contains (5, 8, 3, -1.99). ***** Error *****</div><div>ERROR: new row for relation "orderline" violates check constraint "orderline_unitsellingprice_check" SQL state: 23514 Detail: Failing row contains (5, 8, 3, -1.99).</div></div>
Domain Limit	<p>Overly high price (DECIMAL limit).</p>	<div><div>INSERT INTO Book VALUES(19, 'A Game of Thongs', 95466897566.99, 1, 1);</div><div></div><div>Output pane</div><div><div>Data Output</div><div>Explain</div><div>Messages</div><div>History</div></div><div>ERROR: numeric field overflow DETAIL: A field with precision 10, scale 2 must round to an absolute value less than 10^8. ***** Error *****</div><div>ERROR: numeric field overflow SQL state: 22003 Detail: A field with precision 10, scale 2 must round to an absolute value less than 10^8.</div></div>

Domain Format	Incorrect format of Book price (DECIMAL Domain).	 <p>Output pane</p> <p>ERROR: invalid input syntax for type numeric: "one-ninety-nine" LINE 3: INSERT INTO Book VALUES(18, 'Moby Richard', 'one-ninety-nine... ^</p> <p>***** Error *****</p> <p>ERROR: invalid input syntax for type numeric: "one-ninety-nine" SQL state: 22P02 Character: 86</p>
Domain Format	Incorrect format of OrderDate (DATE domain).	 <p>Output pane</p> <p>ERROR: column "orderdate" is of type date but expression is of type integer LINE 3: INSERT INTO ShopOrder VALUES(14, 2019-02-15, 1, 1); ^</p> <p>HINT: You will need to rewrite or cast the expression.</p> <p>***** Error *****</p> <p>ERROR: column "orderdate" is of type date but expression is of type integer SQL state: 42804 Hint: You will need to rewrite or cast the expression. Character: 75</p>
Referential Integrity	Non-unique Orderline (ShopOrderID, BookID) pair (pk test).	 <p>Output pane</p> <p>ERROR: duplicate key value violates unique constraint "orderline_pkey" DETAIL: Key (shoporderid, bookid)=(1, 2) already exists.</p> <p>***** Error *****</p> <p>ERROR: duplicate key value violates unique constraint "orderline_pkey" SQL state: 23505 Detail: Key (shoporderid, bookid)=(1, 2) already exists.</p>
Referential Integrity	CategoryID breaking Referential Integrity (incorrect fk reference).	 <p>Output pane</p> <p>ERROR: insert or update on table "book" violates foreign key constraint "book_categoryid_fk" DETAIL: Key (categoryid)=(100) is not present in table "category".</p> <p>***** Error *****</p> <p>ERROR: insert or update on table "book" violates foreign key constraint "book_categoryid_fk" SQL state: 23503 Detail: Key (categoryid)=(100) is not present in table "category".</p>

Referential Integrity	PublisherID breaking Referential Integrity (incorrect fk reference).	<div><div>INSERT INTO Book VALUES(17, 'Of Rats and Men', 13.69, 2, 100);</div><div></div><div>Output pane</div><div><div>Data Output</div><div>Explain</div><div>Messages</div><div>History</div></div><div>ERROR: insert or update on table "book" violates foreign key constraint "book_publisherid_fk" DETAIL: Key (publisherid)=(100) is not present in table "publisher". ***** Error *****</div><div>ERROR: insert or update on table "book" violates foreign key constraint "book_publisherid_fk" SQL state: 23503 Detail: Key (publisherid)=(100) is not present in table "publisher".</div></div>
Referential Integrity	ShopID breaking Referential Integrity (incorrect fk reference).	<div><div>INSERT INTO ShopOrder VALUES(100, '2019-02-07', 100, 3);</div><div></div><div>Output pane</div><div><div>Data Output</div><div>Explain</div><div>Messages</div><div>History</div></div><div>ERROR: insert or update on table "shoporder" violates foreign key constraint "shoporder_shopid_fk" DETAIL: Key (shopid)=(100) is not present in table "shop". ***** Error *****</div><div>ERROR: insert or update on table "shoporder" violates foreign key constraint "shoporder_shopid_fk" SQL state: 23503 Detail: Key (shopid)=(100) is not present in table "shop".</div></div>
Referential Integrity	SalesRepID breaking Referential Integrity (incorrect fk reference).	<div><div>INSERT INTO ShopOrder VALUES(100, '2019-02-06', 2, 100);</div><div></div><div>Output pane</div><div><div>Data Output</div><div>Explain</div><div>Messages</div><div>History</div></div><div>ERROR: insert or update on table "shoporder" violates foreign key constraint "shoporder_salesrepid_fk" DETAIL: Key (salesrepid)=(100) is not present in table "salesrep". ***** Error *****</div><div>ERROR: insert or update on table "shoporder" violates foreign key constraint "shoporder_salesrepid_fk" SQL state: 23503 Detail: Key (salesrepid)=(100) is not present in table "salesrep".</div></div>
Referential Integrity	Orderline ShopOrderID breaking Referential Integrity (fk reference).	<div><div>INSERT INTO Orderline VALUES(100, 2, 1, 9.95);</div><div></div><div>Output pane</div><div><div>Data Output</div><div>Explain</div><div>Messages</div><div>History</div></div><div>ERROR: insert or update on table "orderline" violates foreign key constraint "orderline_shoporderid_fk" DETAIL: Key (shoporderid)=(100) is not present in table "shoporder". ***** Error *****</div><div>ERROR: insert or update on table "orderline" violates foreign key constraint "orderline_shoporderid_fk" SQL state: 23503 Detail: Key (shoporderid)=(100) is not present in table "shoporder".</div></div>

Referential Integrity	Orderline BookID breaking Referential Integrity (fk reference).	<div><div>INSERT INTO Orderline VALUES(2, 100, 1, 9.95);</div><div><</div></div> <div>Output pane</div> <div><div>Data OutputExplainMessagesHistory</div><div>ERROR: insert or update on table "orderline" violates foreign key constraint "orderline_bookid_fk" DETAIL: Key (bookid)=(100) is not present in table "book". ***** Error ***** ERROR: insert or update on table "orderline" violates foreign key constraint "orderline_bookid_fk" SQL state: 23503 Detail: Key (bookid)=(100) is not present in table "book".</div></div>
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