Question 1
What are the top 5 brands by receipts scanned for most recent month?

WITH recent_month_dates AS (
   SELECT
      DATE_TRUNC('month', CURRENT_DATE) AS start_date,
      DATE_TRUNC('month', CURRENT_DATE) + INTERVAL '1 month - 1 day' AS end_date
)
SELECT b.name AS brandName, COUNT(r.receiptId) AS receiptsScanned
FROM "fetchRewards".brands b
JOIN "fetchRewards".item_list il ON b.brandcode = il.brandCode
JOIN "fetchRewards".Receipts r ON il.receiptId = r.receiptId
JOIN recent_month_dates d ON r.dateScanned BETWEEN d.start_date AND d.end_date
GROUP BY b.name
ORDER BY receiptsScanned DESC
LIMIT 5;

This query gives us the number of receiptsScanned in the recent month, interval function is used to create a month window to identify all the dates in between start_date and end_date.

Question 2
How does the ranking of the top 5 brands by receipts scanned for the recent month compare to the ranking for the previous month?

```sql
WITH previous_month_dates AS (
  SELECT
    DATE_TRUNC('month', CURRENT_DATE - INTERVAL '1 month') AS start_date,
    DATE_TRUNC('month', CURRENT_DATE - INTERVAL '1 month') + INTERVAL '1 month -
1 day' AS end_date
)
SELECT b.name AS brandName, COUNT(r.receiptId) AS receiptsScanned
FROM "fetchRewards".brands b
JOIN "fetchRewards".item_list il ON b.brandCode = il.brandCode
JOIN "fetchRewards".Receipts r ON il.receiptId = r.receiptId
JOIN previous_month_dates d ON r.dateScanned BETWEEN d.start_date AND d.end_date
GROUP BY b.name
ORDER BY receiptsScanned DESC
LIMIT 5;

WITH recent_month_dates AS (
  SELECT
    DATE_TRUNC('month', CURRENT_DATE) AS start_date,
    DATE_TRUNC('month', CURRENT_DATE) + INTERVAL '1 month - 1 day' AS end_date
)
SELECT b.name AS brandName, COUNT(r.receiptId) AS receiptsScanned
FROM "fetchRewards".brands b
JOIN "fetchRewards".item_list il ON b.brandcode  = il.brandCode
JOIN "fetchRewards".Receipts r ON il.receiptId = r.receiptId
JOIN recent_month_dates d ON r.dateScanned BETWEEN d.start_date AND d.end_date
GROUP BY b.name
ORDER BY receiptsScanned DESC
LIMIT 5;
```

The first query will give us the results for the top 5 brands of previous_month on the basis of receipts scanned and the second query will give the result of the top 5 brands of recent_month. The results from these 2 queries can be used to perform comparison be it on brands or receiptsScanned.

Question 3
When considering average spend from receipts with 'rewardsReceiptStatus' of 'Accepted' or 'Rejected', which is greater?

SELECT rewardsReceiptStatus, AVG(totalSpent) AS avgSpend
FROM Receipts
WHERE rewardsReceiptStatus IN ('Accepted', 'Rejected')
GROUP BY rewardsReceiptStatus
ORDER BY avgSpend DESC;

This query will give us the table containing accepted and rejected statuses with their corresponding average spend, and the table is sorted in descending manner to give a clear insight into which category has a higher avgSpend.

Question 4
When considering total number of items purchased from receipts with 'rewardsReceiptStatus' of 'Accepted' or 'Rejected', which is greater?

SELECT rewardsReceiptStatus, SUM(purchasedItemCount) AS itemsPurchased
FROM Receipts
WHERE rewardsReceiptStatus IN ('Accepted', 'Rejected')
GROUP BY rewardsReceiptStatus
ORDER BY itemsPurchased DESC;

This query will give us the table containing accepted and rejected statuses with their corresponding average spend, and the table is sorted in descending manner to give a clear insight into which category has a higher itemsPurchased.

Question 5
Which brand has the most spend among users who were created within the past 6 months?

```
WITH recent_users AS (
    SELECT userId
    FROM "fetchRewards".Users
    WHERE createdDate >= (CURRENT_DATE - INTERVAL '6 months')
)
SELECT b.name AS brandName, SUM(r.totalSpent) AS totalSpend
FROM "fetchRewards".brands b
JOIN "fetchRewards".item_list il ON b.brandCode = il.brandCode
JOIN "fetchRewards".Receipts r ON il.receiptId = r.receiptId
JOIN "fetchRewards".UserReceipts ur ON r.receiptId = ur.receiptId
JOIN recent_users u ON ur.userId = u.userId
GROUP BY b.name
ORDER BY totalSpend DESC
LIMIT 1;
```

Question 6
Which brand has the most transactions among users who were created within the past 6 months?

```
WITH recent_users AS (
    SELECT userId
    FROM "fetchRewards".Users
    WHERE createdDate >= (CURRENT_DATE - INTERVAL '6 months')
)
SELECT b.name AS brandName, COUNT(DISTINCT r.receiptId) AS transactionCount
FROM "fetchRewards".brands b
JOIN "fetchRewards".item_list il ON b.brandCode = il.brandCode
JOIN "fetchRewards".Receipts r ON il.receiptId = r.receiptId
JOIN "fetchRewards".UserReceipts ur ON r.receiptId = ur.receiptId
JOIN recent_users u ON ur.userId = u.userId
GROUP BY b.name
ORDER BY transactionCount DESC
LIMIT 1;
```

Both of the above queries will give the top brand on the basis of totalSpend and transactionCount respectively for the users who were created in last 6 months.