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CREATE TABLE online_casino (
  licensee TEXT NOT NULL,
  fiscal_year TEXT NOT NULL,
  month_ending TIMESTAMP WITHOUT TIME ZONE NOT NULL,
  wagers NUMERIC(18,2) NOT NULL,
  patron_winnings NUMERIC(18,2) NOT NULL,
  cancelled_wagers NUMERIC(18,2) NOT NULL,
  online_casino_gaming_win NUMERIC(18,2) NOT NULL,
  promotional_coupons_or_credits NUMERIC(18,2) NOT NULL,
  promotional_deduction_4 NUMERIC(18,2) NOT NULL,
  total_gross_gaming NUMERIC(18,2) NOT NULL,
  tax_payment_5 NUMERIC(18,2) NOT NULL
);

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-- Business Questions for Online Casino Dataset:

-- 1. Monthly Revenue Trend

-- - What is the total gross gaming revenue per month and how does it change over time?

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SELECT
  TO_CHAR(DATE_TRUNC('month', month_ending), 'YYYY-MM') AS month,
  SUM(total_gross_gaming) AS total_gross_revenue_month,
  LAG(SUM(total_gross_gaming)) OVER (
    ORDER BY DATE_TRUNC('month', month_ending)
  ) AS prev_month_revenue,
  ROUND(
    (SUM(total_gross_gaming) - LAG(SUM(total_gross_gaming)) OVER (
      ORDER BY DATE_TRUNC('month', month_ending)
    ))
    / LAG(SUM(total_gross_gaming)) OVER (
      ORDER BY DATE_TRUNC('month', month_ending)
    ) * 100, 2
  ) AS mom_growth_pct
FROM online_casino
GROUP BY DATE_TRUNC('month', month_ending)
ORDER BY DATE_TRUNC('month', month_ending);

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	month text	total_gross_revenue_month numeric	prev_month_revenue numeric	mom_growth_pct numeric
1	2021-10	6640871.00	[null]	[null]
2	2021-11	13851448.00	6640871.00	108.58
3	2021-12	16338921.00	13851448.00	17.96
4	2022-01	18833534.00	16338921.00	15.27
5	2022-02	17138741.00	18833534.00	-9.00
6	2022-03	18319714.00	17138741.00	6.89
7	2022-04	18467342.00	18319714.00	0.81
8	2022-05	16575801.00	18467342.00	-10.24
9	2022-06	16299190.00	16575801.00	-1.67
10	2022-07	16655426.00	16299190.00	2.19

-- 2. Licensee Performance Ranking

-- - Which licensees generated the highest net revenue (GGR - promo deduction) over the fiscal year?

WITH ranked AS (

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SELECT
  licensee,
  fiscal_year,
  SUM(total_gross_gaming - promotional_deduction_4) AS net_revenue,
  RANK() OVER (
    PARTITION BY fiscal_year
    ORDER BY SUM(total_gross_gaming - promotional_deduction_4) DESC
  ) AS rank_by_net_revenue
FROM online_casino
GROUP BY licensee, fiscal_year

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)

SELECT *

FROM ranked

WHERE rank_by_net_revenue = 1

ORDER BY fiscal_year;

	licensee text	fiscal_year text	net_revenue numeric	rank_by_net_revenue bigint
1	MPI Master Wagering License CT, LLC	2021/22	55570374.00	1
2	MPI Master Wagering License CT, LLC	2022/23	113705757.00	1
3	MPI Master Wagering License CT, LLC	2023/24	183736937.00	1
4	MPI Master Wagering License CT, LLC	2024/25	224702919.00	1
5	MPI Master Wagering License CT, LLC	2025/26	62131873.00	1

-- 3. Year-over-Year Growth

-- - What is the year-over-year revenue growth for each licensee?

SELECT

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licensee,
fiscal_year,
SUM(total_gross_gaming - promotional_deduction_4) AS net_revenue_year,
LAG(SUM(total_gross_gaming - promotional_deduction_4)) OVER (
  PARTITION BY licensee
  ORDER BY fiscal_year
) AS prev_year_net_revenue,
ROUND(
  (SUM(total_gross_gaming - promotional_deduction_4)
  - LAG(SUM(total_gross_gaming - promotional_deduction_4)) OVER (
    PARTITION BY licensee
    ORDER BY fiscal_year
  ))
  / LAG(SUM(total_gross_gaming - promotional_deduction_4)) OVER (

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PARTITION BY licensee
ORDER BY fiscal_year
) * 100, 2
) AS year_growth_pct
FROM online_casino
GROUP BY licensee, fiscal_year
ORDER BY licensee, fiscal_year;

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	licensee text	fiscal_year text	net_revenue_year numeric	prev_year_net_revenue numeric	year_growth_pct numeric
1	Mohegan Digital, LLC	2021/22	50316797.00	[null]	[null]
2	Mohegan Digital, LLC	2022/23	92843272.00	50316797.00	84.52
3	Mohegan Digital, LLC	2023/24	141487149.00	92843272.00	52.39
4	Mohegan Digital, LLC	2024/25	208765009.00	141487149.00	47.55
5	Mohegan Digital, LLC	2025/26	62104112.00	208765009.00	-70.25
6	Mohegan Tribe On-Reservation	2021/22	57774.00	[null]	[null]
7	Mohegan Tribe On-Reservation	2022/23	134794.00	57774.00	133.31

-- 4. Promotion Efficiency

-- - How effective are promotional credits in driving wagers and revenue?

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SELECT
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    TO_CHAR(DATE_TRUNC('month', month_ending), 'YYYY-MM') AS month,
    SUM(promotional_coupons_or_credits) AS total_promotions,
    SUM(wagers) AS total_wagers,
    SUM(total_gross_gaming) AS total_ggr,
    SUM(total_gross_gaming - promotional_deduction_4) AS net_revenue,
    ROUND(
        (SUM(total_gross_gaming) - SUM(promotional_deduction_4))
        / NULLIF(SUM(promotional_coupons_or_credits), 0), 2
    ) AS promo_roi,
    ROUND(
        SUM(promotional_coupons_or_credits) / NULLIF(SUM(wagers), 0) * 100, 2
    ) AS promo_share_of_wagers_pct

```

```
FROM online_casino
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GROUP BY DATE_TRUNC('month', month_ending)
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ORDER BY month;
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	month text	total_promotions numeric	total_wagers numeric	total_ggr numeric	net_revenue numeric	promo_roi numeric	promo_share_of_wagers_pct numeric
1	2021-10	3425283.00	312861944.00	6640871.00	4427247.00	1.29	1.09
2	2021-11	7915620.00	691283436.00	13851448.00	9265813.00	1.17	1.15
3	2021-12	3958982.00	814862528.00	16338921.00	12379939.00	3.13	0.49
4	2022-01	3640061.00	780053027.00	18833534.00	15193473.00	4.17	0.47
5	2022-02	18190003.00	743894957.00	17138741.00	12694556.00	0.70	2.45
6	2022-03	33121591.00	820907308.00	18319714.00	14001717.00	0.42	4.03
7	2022-04	18500888.00	760560593.00	18467342.00	14177423.00	0.77	2.43

-- 5. Payout Ratio and Profitability

-- - What's the payout ratio (winnings / wagers) and net margin per licensee and month?

```

SELECT
  TO_CHAR(DATE_TRUNC('month', month_ending), 'YYYY-MM') AS month,
  licensee,
  SUM(wagers) AS total_wagers,
  SUM(patron_winnings) AS total_winnings,
  ROUND(SUM(patron_winnings) / NULLIF(SUM(wagers), 0), 4) AS payout_ratio,
  SUM(total_gross_gaming - promotional_deduction_4) AS net_revenue,
  ROUND(
    (SUM(total_gross_gaming - promotional_deduction_4) / NULLIF(SUM(wagers), 0)) * 100,
    2
  ) AS net_margin_pct
FROM online_casino
GROUP BY DATE_TRUNC('month', month_ending), licensee
ORDER BY month, licensee;

```

	month text	licensee text	total_wagers numeric	total_winnings numeric	payout_ratio numeric	net_revenue numeric	net_margin_pct numeric
1	2021-10	Mohegan Digital, LLC	123299057.00	119200731.00	0.9668	2020289.00	1.64
2	2021-10	MPI Master Wagering License CT, LLC	189562887.00	184748397.00	0.9746	2406958.00	1.27
3	2021-11	Mohegan Digital, LLC	275235600.00	267352697.00	0.9714	3978247.00	1.45
4	2021-11	MPI Master Wagering License CT, LLC	416047836.00	405355891.00	0.9743	5287566.00	1.27
5	2021-12	Mohegan Digital, LLC	290977291.00	282738367.00	0.9717	6034490.00	2.07
6	2021-12	MPI Master Wagering License CT, LLC	523770709.00	511419680.00	0.9764	6343363.00	1.21
7	2021-12	MPTN On-Reservation	114528.00	111365.00	0.9724	2086.00	1.82

-- 6. Tax Burden Analysis

-- - What percentage of total revenue goes to tax payments, and does it vary across licensees?

```

SELECT
  licensee,
  SUM(wagers) AS total_wagers,
  SUM(total_gross_gaming) AS total_revenue,
  SUM(tax_payment_5) / NULLIF(SUM(total_gross_gaming), 0) AS tax_ratio
FROM online_casino
GROUP BY licensee
ORDER BY tax_ratio DESC, licensee;

```

	licensee text	total_wagers numeric	total_revenue numeric	tax_ratio numeric
1	Mohegan Tribe On-Reservation	82312990.00	1874501.00	0.19333358584497954389
2	MPTN On-Reservation	106054951.00	2406721.00	0.18159977828755389594
3	MPI Master Wagering License CT, LLC	31535437268.00	807658306.00	0.18000000237724293273
4	Mohegan Digital, LLC	24113773444.00	683123127.00	0.18000000020494109256

-- 7. Anomalies in Cancelled Wagers

-- - Identify months or licensees where cancelled wagers spiked unusually.

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WITH monthly_cancellations AS (
  SELECT
    licensee,
    DATE_TRUNC('month', month_ending) AS month,
    SUM(cancelled_wagers) AS total_cancelled

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FROM online_casino
GROUP BY licensee, DATE_TRUNC('month', month_ending)
),
stats AS (
  SELECT
    licensee,
    month,
    total_cancelled,
    AVG(total_cancelled) OVER (PARTITION BY licensee) AS avg_cancelled,
    STDDEV(total_cancelled) OVER (PARTITION BY licensee) AS stddev_cancelled
  FROM monthly_cancellations
)
SELECT
  licensee,
  TO_CHAR(month, 'YYYY-MM') AS month,
  total_cancelled,
  ROUND((total_cancelled - avg_cancelled) / NULLIF(stddev_cancelled, 0), 2) AS z_score,
  CASE
    WHEN (total_cancelled - avg_cancelled) / NULLIF(stddev_cancelled, 0) > 2
    THEN 'Spike Detected'
    ELSE 'Normal'
  END AS anomaly_flag
FROM stats
ORDER BY licensee, month;

```

	licensee text	month text	total_cancelled numeric	z_score numeric	anomaly_flag text
1	Mohegan Digital, LLC	2021-10	57747.00	-0.75	Normal
2	Mohegan Digital, LLC	2021-11	20951.00	-0.82	Normal
3	Mohegan Digital, LLC	2021-12	669.00	-0.85	Normal
4	Mohegan Digital, LLC	2022-01	7369.00	-0.84	Normal
5	Mohegan Digital, LLC	2022-02	3303.00	-0.85	Normal
6	Mohegan Digital, LLC	2022-03	6584.00	-0.84	Normal
7	Mohegan Digital, LLC	2022-04	3628.00	-0.85	Normal

-- 8. Cumulative Revenue Over Time

-- - How does cumulative revenue evolve month over month per licensee?

-- - Useful SQL: SUM(...) OVER (PARTITION BY licensee ORDER BY month_ending) cumulative sum.

```

WITH monthly_revenue AS (
  SELECT
    licensee,
    DATE_TRUNC('month', month_ending) AS month,
    SUM(total_gross_gaming - promotional_deduction_4) AS net_revenue_month
  FROM online_casino
  GROUP BY licensee, DATE_TRUNC('month', month_ending)
)

```

```

SELECT
  licensee,
  TO_CHAR(month, 'YYYY-MM') AS month,
  net_revenue_month,
  SUM(net_revenue_month) OVER (
    PARTITION BY licensee
    ORDER BY month
    ROWS BETWEEN UNBOUNDED PRECEDING AND CURRENT ROW
  ) AS cumulative_net_revenue
FROM monthly_revenue
ORDER BY licensee, month;

```

	licensee text	month text	net_revenue_month numeric	cumulative_net_revenue numeric
1	Mohegan Digital, LLC	2021-10	2020289.00	2020289.00
2	Mohegan Digital, LLC	2021-11	3978247.00	5998536.00
3	Mohegan Digital, LLC	2021-12	6034490.00	12033026.00
4	Mohegan Digital, LLC	2022-01	6632531.00	18665557.00
5	Mohegan Digital, LLC	2022-02	5813050.00	24478607.00