Report generator

1. **Top 10 under-utilised Ad campaigns:**

   Note: Considering utilization in terms of budget remaining out of total budget for more interpretable results.

```
SELECT campaign_id, category, total_budget, remaining_budget,
ROUND((remaining_budget*100)/total_budget,6) as percent_remaining
FROM(
SELECT a.campaign_id, a.category, a.budget as remaining_budget, e.expenditure +
a.budget as total_budget,
DENSE_RANK() OVER(ORDER BY a.budget/(e.expenditure + a.budget) desc) as rn
FROM upgrad.ads a, (SELECT af.campaign_id, SUM(af.expenditure) expenditure
FROM upgrad.ads_feedback af GROUP BY af.campaign_id) e
WHERE a.campaign_id = e.campaign_id)ads
WHERE ads.rn <=10;
```

2. **Top 10 spending Ad campaigns:**

   Note: Considering spending in terms of expenditure out of total budget for more interpretable results.

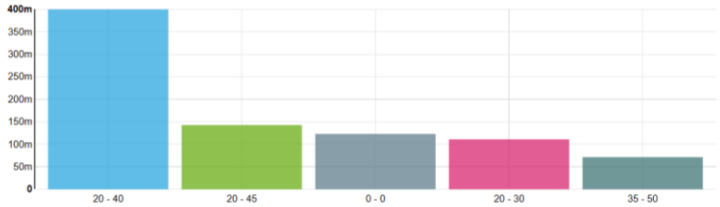
```
SELECT campaign_id, category, total_budget, expenditure,
ROUND((expenditure*100)/total_budget,6) as percent_spending
FROM(
SELECT a.campaign_id, a.category,  ROUND(e.expenditure,5) expenditure,
e.expenditure + a.budget as total_budget,
DENSE_RANK() OVER(ORDER BY e.expenditure/(e.expenditure + a.budget) desc) as
rn
FROM upgrad.ads a, (Select af.campaign_id, sum(af.expenditure) expenditure from
upgrad.ads_feedback af group by af.campaign_id) e
Where a.campaign_id = e.campaign_id)ads
WHERE ads.rn <=10;
```

3. **Total expenditure and click-through rates (CTR) of Ad campaigns**

```
SELECT campaign_id, ROUND(SUM(expenditure),6) expenditure,
ROUND(SUM((CASE WHEN user_action = 'click' THEN 1 ELSE 0 END)) /
SUM((CASE WHEN user_action = 'view' THEN 1 ELSE 0 END)),6) ctr
FROM upgrad.ads_feedback
GROUP BY campaign_id;
```

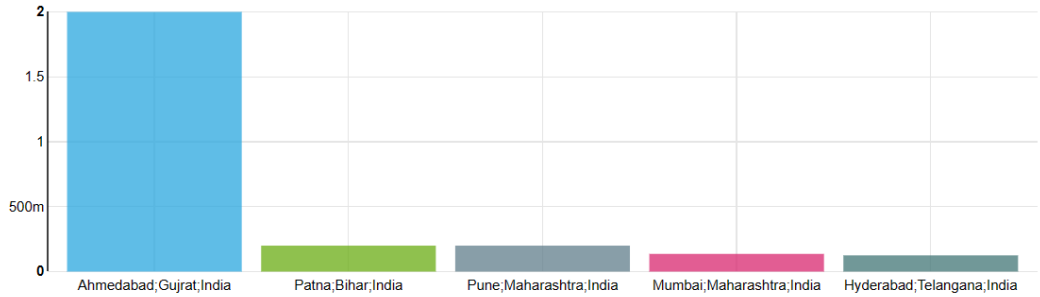
4. **Top five interactive (highest CTRs) age groups**

```
SELECT target_age_range, ROUND(SUM((CASE WHEN user_action = 'click' THEN 1
ELSE 0 END))/
SUM((CASE WHEN user_action = 'view' THEN 1 ELSE 0 END)),6) ctr
FROM upgrad.ads_feedback
GROUP BY target_age_range
ORDER BY ctr desc;
```



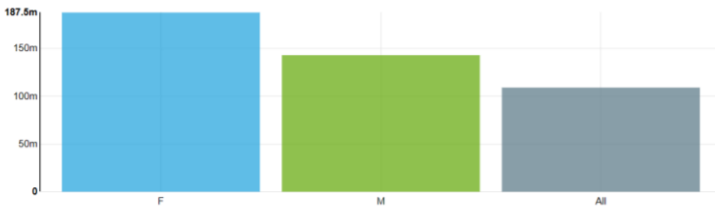
5. **Top five interactive locations**

```
SELECT target_location, ROUND(SUM((CASE WHEN user_action = 'click' THEN 1
ELSE 0 END))/
SUM((CASE WHEN user_action = 'view' THEN 1 ELSE 0 END)),6) ctr
FROM upgrad.ads_feedback
GROUP BY target_location
ORDER BY ctr desc;
```



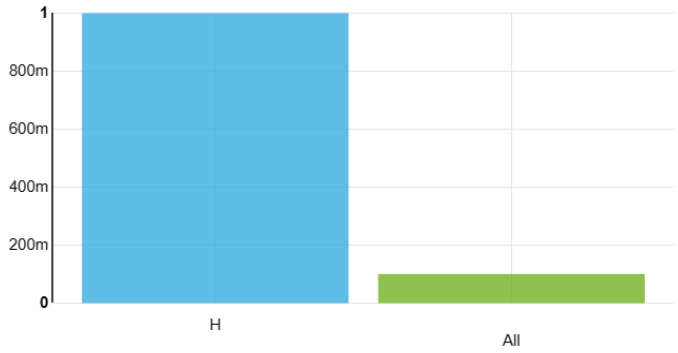
6. **Top interactive gender**

```
SELECT target_gender, ROUND(SUM((CASE WHEN user_action = 'click' THEN 1
ELSE 0 END))/
SUM((CASE WHEN user_action = 'view' THEN 1 ELSE 0 END)),6) ctr
FROM upgrad.ads_feedback
GROUP BY target_gender
ORDER BY ctr desc;
```



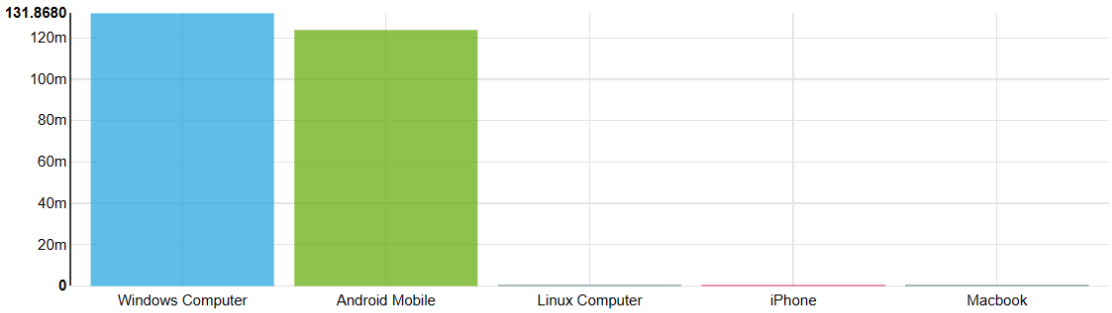
7. **Top interactive income buckets**

```
SELECT target_income_bucket, ROUND(SUM((CASE WHEN user_action = 'click'
THEN 1 ELSE 0 END))/
SUM((CASE WHEN user_action = 'view' THEN 1 ELSE 0 END)),6) ctr
FROM upgrad.ads_feedback
GROUP BY target_income_bucket
ORDER BY ctr desc;
```



8. **Top five interactive device types**

```
SELECT a.target_device_type, ROUND(SUM((CASE WHEN sa.user_action = 'click'
THEN 1 ELSE 0 END))/
SUM((CASE WHEN sa.user_action = 'view' THEN 1 ELSE 0 END)),6) ctr
FROM upgrad.ads_feedback sa, upgrad.ads a
WHERE sa.campaign_id = a.campaign_id
GROUP BY a.target_device_type
ORDER BY ctr desc;
```



9. **Top 10 spending Ad categories**

SELECT a.category, ROUND(sum(sa.expenditure),6) expenditure FROM upgrad.ads a, upgrad.ads_feedback sa
WHERE a.campaign_id = sa.campaign_id GROUP BY a.category ORDER BY expenditure DESC;

10. **Highest price differences in CPM during auctions**

Note: Since ads_feedback can have multiple entries for same campaign, considering minimum value for auction_cpm for a particular campaign will help in identifying the maximum possible difference that was there during auctions.

SELECT a.campaign_id, (a.cpm-af.auction_cpm) as difference
FROM upgrad.ads a, (Select sa.campaign_id, min(sa.auction_cpm) as auction_cpm from upgrad.ads_feedback sa group by sa.campaign_id) af
WHERE a.campaign_id = af.campaign_id
ORDER BY difference DESC;