计算机科学与技术学院 数据库系统 课程实验报告

|  |  |  |
| --- | --- | --- |
| 实验题目：综合实验5 | | 学号：202300130183 |
| 日期：2024/12/20 | 班级：23级人工智能 | 姓名：宋浩宇 |
| Email：2367651943@qq.com | | |
| 实验软件和硬件环境：  实验软件：  系统：Windows 11 家庭中文版23H2 22631.4317  编辑器：Visual Studio Code  数据库：SQL Server 2022  数据库管理工具：Microsoft SQL Server Management Studio 18  硬件环境：  CPU：13th Gen Intel(R) Core(TM) i9-13980HX 2.20 GHz  内存：32.0 GB (31.6 GB 可用)  磁盘驱动器：NVMe WD\_BLACKSN850X2000GB | | |
| 实验步骤：  第一题：  SQL：  SELECT      HOST\_TID,      CNT1 + CNT2 AS CNT  FROM      (          SELECT              HOST\_TID,              COUNT(\*) AS CNT1          FROM              MATCH          WHERE              HOST\_WIN = "是"          GROUP BY              HOST\_TID      ),      (          SELECT              GUEST\_TID,              COUNT(\*)  AS CNT2          FROM              MATCH          WHERE              HOST\_WIN = "否"          GROUP BY              GUEST\_TID      )  WHERE      HOST\_TID = GUEST\_TID;  结果：  结果图1-1  结果图1-2  第二题：  SQL：  SELECT      PICK.CID,      PICK.MID,      MATCH.TIME  FROM      PICK      JOIN MATCH      ON PICK.MID = MATCH.MID  WHERE      CID = 1  ORDER BY      MATCH.TIME DESC LIMIT 1;  结果：  结果图2-1  结果图2-2  第三题：  SQL：  SELECT      \*  FROM      CHAMPION  WHERE      CID NOT IN(          SELECT              DISTINCT CID          FROM              PICK      );  结果：  结果图3-1  结果图3-2  没有没被选择过的英雄  第四题：  SQL：  SELECT      NAME  FROM      (          SELECT              CHAMPION.NAME,              COUNT(                  CASE RANK                      WHEN 1 THEN                          1                      ELSE                          NULL                  END) AS TIMES          FROM              PICK              JOIN CHAMPION              ON PICK.CID = CHAMPION.CID          GROUP BY              PICK.CID          ORDER BY              COUNT(                  CASE RANK                      WHEN 1 THEN                          1                      ELSE                          NULL                  END) DESC LIMIT 1      );  结果：  结果图4-1  结果图4-2  第五题：  SQL：  SELECT      PLAYER.NAME,      COUNT(\*) AS CNT  FROM      KILL      JOIN PLAYER      ON KILL.PID\_KILLER = PLAYER.PID  GROUP BY      PID\_KILLER  ORDER BY      COUNT(\*) DESC LIMIT 1;  结果：  结果图5-1  结果图5-2  第六题：  SQL：  SELECT      TEAM.NAME,      COUNT(\*) AS CNT  FROM      KILL      JOIN PLAYER      ON PLAYER.PID = KILL.PID\_KILLER      JOIN TEAM      ON PLAYER.TID = TEAM.TID  GROUP BY      PLAYER.TID  ORDER BY      COUNT(\*) DESC LIMIT 5;  结果：  结果图6-1  结果图6-2  第七题：  SQL：  SELECT      ID1 AS TID,      (SUM\_TIME1 + SUM\_TIME2)/(CNT1+CNT2) AS AVG\_TIME  FROM      (          SELECT              HOST\_TID AS ID1,              COUNT(\*) AS CNT1,              SUM(                  CASE                      WHEN DURATION IS NOT NULL THEN                          DURATION                      ELSE                          0                  END) AS SUM\_TIME1          FROM              MATCH          GROUP BY              HOST\_TID      ),      (          SELECT              GUEST\_TID AS ID2,              COUNT(\*) AS CNT2,              SUM(                  CASE                      WHEN DURATION IS NOT NULL THEN                          DURATION                      ELSE                          0                  END) AS SUM\_TIME2          FROM              MATCH          GROUP BY              GUEST\_TID      )  WHERE      ID1 = ID2;  结果：  结果图7-1  结果图7-2  第八题：  SQL：  SELECT      PLAYER.NAME,      SUM(AMOUNT) AS SUM\_DAMAGE  FROM      DAMAGE      JOIN PLAYER      ON PLAYER.PID = DAMAGE.PID\_HITTER  GROUP BY      PID\_HITTER  ORDER BY      SUM(AMOUNT) DESC LIMIT 1;  结果：  结果图8-1  结果图8-2  第九题：  SQL：  SELECT      PLAYER.NAME,      COUNT(DISTINCT CID) AS CNT  FROM      PICK      JOIN PLAYER      ON PLAYER.PID = PICK.PID  GROUP BY      PICK.PID  ORDER BY      COUNT(DISTINCT CID) DESC LIMIT 1;  结果：  结果图9-1  结果图9-2  第十题  SQL：  SELECT      CHAMPION.NAME,      BP\_CNT  FROM      (          SELECT              CID1,              PICK\_CNT+BAN\_CNT AS BP\_CNT          FROM              (                  SELECT                      CID AS CID1,                      COUNT(\*) AS PICK\_CNT                  FROM                      PICK                  GROUP BY                      CID              ),              (                  SELECT                      CID AS CID2,                      COUNT(\*) AS BAN\_CNT                  FROM                      BAN                  GROUP BY                      CID              )          WHERE              CID1 = CID2          ORDER BY              PICK\_CNT+BAN\_CNT DESC LIMIT 1      ),      CHAMPION  WHERE      CHAMPION.CID = CID1;  结果：  结果图10-1  结果图10-2  第十一题  SQL：  SELECT      MATCH.TIME,      MATCH.LOCATION,      PLAYER.NAME,      RATIO  FROM      (          SELECT              SUM\_DAMAGE.MID,              SUM\_DAMAGE.PID\_HITTER AS PID,              SUM\_DAMAGE.SUM\_DAMAGE/SUM\_MONEY.SUM\_MONEY AS RATIO          FROM              (                  SELECT                      MID,                      PID\_HITTER,                      SUM(AMOUNT) AS SUM\_DAMAGE                  FROM                      DAMAGE                  GROUP BY                      MID,                      PID\_HITTER              ) AS SUM\_DAMAGE,              (                  SELECT                      MID,                      PID,                      SUM(AMOUNT) AS SUM\_MONEY                  FROM                      GOLD                  GROUP BY                      MID,                      PID              ) AS SUM\_MONEY          WHERE              SUM\_DAMAGE.MID=SUM\_MONEY.MID              AND SUM\_DAMAGE.PID\_HITTER=SUM\_MONEY.PID          ORDER BY              SUM\_DAMAGE.SUM\_DAMAGE/SUM\_MONEY.SUM\_MONEY DESC LIMIT 1      ) AS BEST\_HITTER      JOIN MATCH      ON BEST\_HITTER.MID=MATCH.MID      JOIN PLAYER      ON BEST\_HITTER.PID=PLAYER.PID;  结果：  结果图11-1  结果图11-2  第十二题  SQL：  SELECT      PLAYER.NAME,      RATIO  FROM      (          SELECT              PLAYER\_DAMAGE.PID,              PLAYER\_DAMAGE.TID,              PLAYER\_DAMAGE.SUM\_DAMAGE/TEAM\_DAMAGE.TOTAL\_DAMAGE AS RATIO          FROM              (                  SELECT                      PLAYER.TID,                      SUM(SUM\_DAMAGE) AS TOTAL\_DAMAGE                  FROM                      (                          SELECT                              PID\_HITTER,                              SUM(AMOUNT) AS SUM\_DAMAGE                          FROM                              DAMAGE                          GROUP BY                              PID\_HITTER                      ) AS DAMAGE\_TABLE                      JOIN PLAYER                      ON DAMAGE\_TABLE.PID\_HITTER = PLAYER.PID                  GROUP BY                      PLAYER.TID              ) AS TEAM\_DAMAGE,              (                  SELECT                      PLAYER.TID,                      PLAYER.PID,                      SUM\_DAMAGE                  FROM                      (                          SELECT                              PID\_HITTER,                              SUM(AMOUNT) AS SUM\_DAMAGE                          FROM                              DAMAGE                          GROUP BY                              PID\_HITTER                      )                      JOIN PLAYER                      ON PLAYER.PID = PID\_HITTER              ) AS PLAYER\_DAMAGE          WHERE              PLAYER\_DAMAGE.TID = TEAM\_DAMAGE.TID          ORDER BY              PLAYER\_DAMAGE.SUM\_DAMAGE/TEAM\_DAMAGE.TOTAL\_DAMAGE DESC LIMIT 1      ) AS BEST\_PLAYER      JOIN PLAYER      ON BEST\_PLAYER.PID = PLAYER.PID;  结果：  结果图12-1  结果图12-2 | | |