数据库系统课程作业

姓名：应承峻 **学号：**3170103456 **实验日期：**2019年4月4日

数据表建立

```
/*表结构*/
create table user(
    reg_number varchar(20),
    stu_name varchar(20) not null,
    politic int(3),
    english int(3),
    math int(3),
    specialized int(3),
    primary key (reg_number)
);
/*测试样例*/
insert into user values('zju1111','stuA',60,50,80,80);
insert into user values('zju2222','stuB',100,120,80,80);
insert into user values('zju3333','stuC',40,25,120,30);
insert into user values('zju4444','stuD',59,90,80,81);
insert into user values('zju5555','stuE',90,48,100,96);
insert into user values('zju6666','stuF',100,100,77,100);
insert into user values('zju7777','stuG',56,100,100,120);
insert into user values('pku8888','stuH',57,47,77,209);
insert into user values('pku9999','stuI',57,47,77,208);
```

查询语句

```
/*初步筛选*/
select * from user
where politic + english + math + specialized >= 315
and politic >= 57 and english >= 47 and math >= 77 and specialized >= 77;
```

```
/*再次筛选*/
public static int check(int politic, int english, int math, int specialized) {
    int total = politic + english + math + specialized;   //计算总分
    int standard = 315;  //基准分
    int delta[] = { 0, 15, 20, 25 };  //差值分
    if (politic < 60)
        standard += delta[60 - politic];
    if (english < 50)
        standard += delta[50 - english];
    if (math < 80)
        standard += delta[80 - math];
```

```
    if (specialized < 80)
        standard += delta[80 - specialized];
    return total >= standard ? total : -1;   //若满足条件返回总分否则返回-1
}
```

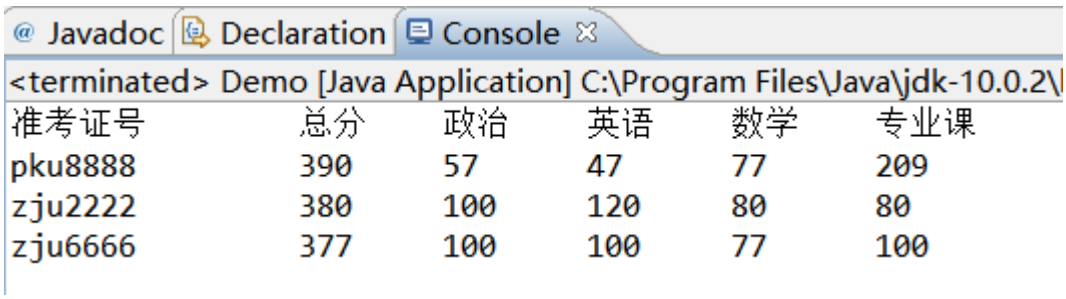
代码实现

```
import java.sql.*;

public class Demo {

    public static void main(String[] args) {
        String url = "jdbc:mysql://127.0.0.1:3306/exam?useUnicode=true&characterEncoding=UTF8";
        try {
            Class.forName("com.mysql.jdbc.Driver"); // 加载驱动程序
            Connection conn = DriverManager.getConnection(url, "root", ""); // 获取数据库连接
            Statement stmt = conn.createStatement(); // 操作数据库
            ResultSet result = stmt.executeQuery("select * from user where politic + english + math + specialized >= 315 and politic >= 57 and english >= 47 and math >= 77 and specialized >= 77");
            System.out.println("准考证号\t\t总分\t政治\t英语\t数学\t专业课");
            while (result.next()) {
                int politic = result.getInt("politic");
                int english = result.getInt("english");
                int math = result.getInt("math");
                int specialized = result.getInt("specialized");
                int total = check(politic, english, math, specialized);
                if (total != -1)
                    System.out.println(result.getString("reg_number") + "\t\t" + total + "\t" + politic + "\t" + english + "\t" + math + "\t" + specialized);
            }
            result.close(); // 依次关闭资源
            stmt.close();
            conn.close();
        } catch (Exception e) {
            e.printStackTrace();
        }
    }

    public static int check(int politic, int english, int math, int specialized) {
        int total = politic + english + math + specialized;
        int standard = 315;
        int delta[] = { 0, 15, 20, 25 };
        if (politic < 60)
            standard += delta[60 - politic];
        if (english < 50)
            standard += delta[50 - english];
        if (math < 80)
```

```
            standard += delta[80 - math];
        if (specialized < 80)
            standard += delta[80 - specialized];
        return total >= standard ? total : -1;
    }

}
```

结果分析

程序输出：



答案验证：

reg_number	stu_name	politic	english	math	specialized	结果分析
pku8888	stuH	57	47	77	209	3科少3分，总分需达到390分。总分：390，满足条件
pku9999	stuI	57	47	77	208	3科少3分，总分需达到390分。总分：389，不满足条件
zju1111	stuA	60	50	80	80	每科到达基准线，但总分只有270分
zju2222	stuB	100	120	80	80	每科到达基准线，且总分380分满足要求
zju3333	stuC	40	25	120	30	英语科目没有到达基准线
zju4444	stuD	59	90	80	81	政治少1分，总分需达到330分。总分：310 不满足条件
zju5555	stuE	90	48	100	96	英语少2分，总分需达到335分。总分：334，不满足条件
zju6666	stuF	100	100	77	100	数学少3分，总分需达到340分。总分：377，满足条件
zju7777	stuG	56	100	100	120	政治少4分，不满足条件

结论：程序输出与分析结果完全一致，程序能够正常运行并给出正确解答。

附：测试样例类型

① 总分没有达到基准线 1个测试点

② 单科没有达到最低基准线

③ 单科没有达到基准线但是总分达到基准线

④ 单科没有到达基准线并且总分没有到达基准线

⑥ 单科达到基准线并且总分达到基准线