**实验七**

**1.题目：**

|  |
| --- |
| 利用ArrayList<E>或HashMap<E>完成点餐系统：  一、显示功能菜单并接收用户选择  1、显示菜单  2、点餐  3、结账  4、退出  二、初始化  三、显示菜单并接收用户选择  三、生成已点餐菜品清单并支持统计和输出消费总额 |

**完整代码：**

MenuItem.java:

|  |
| --- |
| Java import java.util.\*;  class MenuItem {  private String name;  private double price;   public MenuItem(String name, double price) {  this.name = name;  this.price = price;  }   public String getName() {  return name;  }   public double getPrice() {  return price;  }   @Override  public String toString() {  return name + " - ¥" + price;  } }  class OrderSystem {  private HashMap<Integer, MenuItem> menu;  private ArrayList<MenuItem> orderList;  private Scanner scanner;   public OrderSystem() {  menu = new HashMap<>();  orderList = new ArrayList<>();  scanner = new Scanner(System.*in*);  initializeMenu();  }   private void initializeMenu() {  menu.put(1, new MenuItem("宫保鸡丁", 38.0));  menu.put(2, new MenuItem("鱼香肉丝", 32.0));  menu.put(3, new MenuItem("糖醋排骨", 45.0));  menu.put(4, new MenuItem("北京烤鸭", 98.0));  menu.put(5, new MenuItem("红烧狮子头", 42.0));  menu.put(6, new MenuItem("青菜", 15.0));  menu.put(7, new MenuItem("米饭", 3.0));  menu.put(8, new MenuItem("可乐", 6.0));  }   public void start() {  while (true) {  showMainMenu();  int choice = scanner.nextInt();   switch (choice) {  case 1:  displayMenu();  break;  case 2:  orderDishes();  break;  case 3:  checkout();  break;  case 4:  System.*out*.println("感谢使用，再见！");  return;  default:  System.*out*.println("无效选择，请重试！");  }  }  }   private void showMainMenu() {  System.*out*.println("\n=== 餐厅点餐系统 ===");  System.*out*.println("1. 显示菜单");  System.*out*.println("2. 点餐");  System.*out*.println("3. 结账");  System.*out*.println("4. 退出");  System.*out*.print("请选择：");  }   private void displayMenu() {  System.*out*.println("\n=== 菜品清单 ===");  for (Map.Entry<Integer, MenuItem> entry : menu.entrySet()) {  System.*out*.println(entry.getKey() + ". " + entry.getValue());  }  }   private void orderDishes() {  while (true) {  displayMenu();  System.*out*.println("\n请输入菜品编号（输入0完成点餐）：");  int choice = scanner.nextInt();   if (choice == 0) {  break;  }   MenuItem item = menu.get(choice);  if (item != null) {  orderList.add(item);  System.*out*.println("已添加：" + item.getName());  } else {  System.*out*.println("无效的菜品编号！");  }  }  }   private void checkout() {  if (orderList.isEmpty()) {  System.*out*.println("您还没有点任何菜品！");  return;  }   System.*out*.println("\n=== 您的订单 ===");  double total = 0;  Map<String, Integer> itemCount = new HashMap<>();   // 统计每道菜的数量  for (MenuItem item : orderList) {  itemCount.put(item.getName(), itemCount.getOrDefault(item.getName(), 0) + 1);  total += item.getPrice();  }   // 打印订单详情  for (Map.Entry<String, Integer> entry : itemCount.entrySet()) {  String itemName = entry.getKey();  int count = entry.getValue();  double price = menu.values().stream()  .filter(item -> item.getName().equals(itemName))  .findFirst()  .get()  .getPrice();  System.*out*.printf("%s x%d - ¥%.2f\n", itemName, count, price \* count);  }   System.*out*.printf("\n总计：¥%.2f\n", total);   // 清空订单  orderList.clear();  System.*out*.println("结账完成，谢谢惠顾！");  } } |

RestaurantOrderSystem.java:

|  |
| --- |
| JavaScript public class RestaurantOrderSystem {  public static void main(String[] args) {  OrderSystem system = new OrderSystem();  system.start();  } } |

**代码运行截图：**















