

Mini Project: Café

You have been employed as the developers for a local independent café to help them refine their current Point of Sale (POS) system.

MVP

Your task is to build the backend logic for a café POS system. We'll build our application through test driven development to gain confidence it works correctly.

Work on a branch. Do not merge to main, just open a PR and be ready to send the link. Your work will be reviewed on this PR, just as it will on client site.

Remember some of the key lessons we've learnt about developing something:

- Plan first, do this in whatever way works best for you.
- Start small and aim for TDD. Write a test and then just enough code to make that test pass. Refactor after.
- Test frequently! Never move too far away from a working solution. Remember to test not just your happy paths, but also that your code can fail at the correct points. Have you considered all edge cases?
- Work on a branch and commit frequently to that branch, don't push directly to main.
- Make sure your commit message is clear. Present tense. If you are needing to use 'and' in the message you probably should have committed sooner!
- Writing code is collaborative, talk to your peers, discuss ideas.
- Have fun with it! Be as silly and creative as you want to be!

Client requirements:

- Menu:
 - A standard list of menu items.
 - Premium specials need to be able to be added/removed from the menu.
- Bill:
 - Take a customer order and produce an itemised bill which includes an optional service charge.
- Service Charge (will have the below conditions):
 - When all purchased items are cold drinks no service charge is applied.
 - When purchased items include any hot drinks or cold food, apply a service charge of 10% to the total bill (rounded to 2 decimal places).
 - When purchased items include any hot food apply a service charge of 20% to the total bill with a maximum £20 service charge.
 - If a premium special is purchased, a service charge of 25% is added to the total bill with a maximum £40 service charge.
 - Ability to add a custom additional service charge, either in addition to or instead of the optional automatically applied service charge.
- Loyalty scheme:
 - A customer can have one of two types of loyalty card – they cannot have both. Either a drinks loyalty card or a discount loyalty card.
 - A customer can apply for a loyalty card but are not eligible if they already have the other card, have purchased from the café less than 5 times or are under 18.

- Drinks loyalty card – every time they purchase a drink, they receive a stamp (maximum of 1 per day), on the 10th visit their drink is free.
- Discount loyalty card - every time their bill comes to more than £20 (once per day) they receive a star. Each star will generate a discount on the total bill (before service charge is applied) of 2%.
 - The maximum amount of stars is 8, once 8 is reached they will not receive any more stars but the total % discount of 16% will be taken off each bill over £20 (not including service charge).
 - Premium menu items are excluded from this discount.
 - In order to qualify for this discount card, their total spend over a minimum of 5 purchases needs to be £150.
 - *E.g. if a customer purchased 4 times, each a minimum of £20, on 4 different days, they will be entitled to a discount of 8% on every purchase (regardless of total price). They can redeem this discount with every purchase, multiple times per day. On their 5th purchase of minimum £20 (after discount scheme), they will receive their 8% discount and a star (taking them to 5).*

Extension 1

This is an airport café.

Some of the customers may want to pay in other, well known, currencies. Implement the logic to allow the customer to choose the currency they pay in and produce the bill accordingly.

Airport employees receive an additional 10% staff discount if they have worked for the company for 6 months or more. This works in addition to all other offers and is calculated before service charge.

Extension 2

Implement happy hour functionality, where drinks are half price between 6pm and 7pm. (*HINT*: check out the java.time library).

During happy hour the loyalty cards do not work with this offer however will still work with food items.

Extension 3

Add additional information to your produced bill including date, time of transaction, staff member, transition type (cash/card).

Extension 4

The client has decided they need a more reliable close of day routine. They require a breakdown at the end of each day, which should include:

- Total sales – separated into the categories of: Hot Food, Cold Food, Hot Drinks, Cold Drinks, Alcoholic Drinks, Sundries and Premium Meals.
- Total monies taken – separated by payment type: Card, Cash, Amex.
- Discounts used – from loyalty cards and generic manager discounts (comping food due to complaints, for example.)
- Stock count.
- An automatically generated shopping list for any items that are at stock level of 0.
- Total profit made – think about what overheads need to be considered here.