PROGRESS OUTCOME 5

Sandwich costings

Context

The students in a year 12 class have been investigating the systems involved in the operation of a local small business, club, or organisation. They were asked to critically analyse existing systems and identify a need that could be met through some form of advanced digital design intervention. They then designed and developed a program (as an outcome) to respond to this need.

James has worked with a partner, Isaac, to develop a program to help the school canteen manager determine accurate costings for the canteen's sandwich range.

Insight 1: Design decisions

Our discussions with the canteen manager showed up a need for accurate costing of a new sandwich menu with more flexible options. The canteen manager wanted to know how much each sandwich would cost taking account of different combinations of bread, wrap, fillings, salads, and sauces. He also needed to understand how much the final price should vary as the costs of the raw ingredients fluctuated.

Isaac and I created a program plan. We sketched a simple flow chart for the canteen's ordering system to help us understand the possible data structure. We also generated some pseudocode to identify the modules needed for our code.

Insight 2: Developing the data structure

We developed the data structure to contain the required information that we'd identified through our planning. We then designed and tested the UI (user interface) to ensure we could collect the data we would need. Finally, we checked that our solution was flexible enough to include the variable costs and measurements of ingredients.

We had to ensure that our data structure would allow us to provide an average cost per sandwich, and that this could vary according to purchase costs and expected profit margins.

Insight 3: Iterative development and improvement

As our design developed, we found we had to use modules with parameter passing and a GUI (graphical user interface) widget or buttons to make the program more accessible for the canteen manager.

We found a way to make the cost input more efficient, by exporting CSV data from the canteen manager's ordering system and importing it into the database for the program.

Insight 4: Meeting end-user requirements

Isaac and I regularly consulted with the canteen manager. We developed the program and used a set of test cases to check its functionality.

During testing, the manager added that it would be useful to know the five top-selling combinations to help with stocktaking and reordering. We were able to identify top sellers and save them in rank order.

Insight 5: Testing the final outcome

The canteen manager tested the system and found that it helped him identify when to pass on savings to customers as specials. He explained that knowing the best-selling combinations would allow him to reduce prices further. He was very pleased with the final program and said it had made his operations much clearer and easier to understand.

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