Assignment 1 - Parchment Basement

Overview

For this individual assignment, you will use skills acquired through practical laboratory exercises to automate a business process, and to visualize the impact of the automation.

You should use Microsoft Excel (or equivalent open-source software) for this assessment task.

Important: This assignment specification is generated just for you. Do not distribute this specification.

Timelines and Expectations

Percentage value of task: 20%

Due: Sunday, Week 7 (See Course Description for date)

Learning Outcomes Assessed

The following course learning outcomes are assessed by completing this assessment:

- **A1.** Prepare a basic solution to a business problem;
- **A2.** Select appropriate IT solutions for business functions;
- **A3.** Apply business information software for data visualization and analysis purposes.
- **S1.** Write basic programming logic;
- **S3.** Interpret and construct representations of business data flow and processes;
- **K8.** Outline the basic principles of programming.

Assessment Details

Parchment Basement is a small second-hand book shop, run by a team of three staff members: April, Barnardo, and Carolyn.

For this assignment, you will complete the following set of tasks using Excel, and build an ePortfolio page to describe your work.

Task 0 - Setting up

Create an ePortfolio page for your assignment. You will submit this page to Moodle as per the lab tasks.

You may call it whatever you like, for example `ITECH1100 Assignment 1 - 30355286`.

Hours of operation

Most of the time, each team member works separate shifts:

- April works 9:00 AM to 12:30 PM, Monday, Tuesday and Wednesday;
- Barnardo works 9:00 AM to 12:30 PM, Thursday, Friday and Saturday; and
- Carolyn works 12:30 PM to 5:30 PM, Monday to Friday.

The shop runs from 9:00 AM to 5:30 PM each day, except Saturday when it closes at 12:30. It is closed entirely on Sundays.

Costs

April and Barnardo are the semi-retired co-owners of the bookshop, and do not take a salary.

Carolyn, however, is a part-time employee, with total employment costs of $22 per hour. Carolyn is also entitled to **four weeks** of paid annual leave, during which a casual replacement is required at a cost of $33 per hour.

Fixed costs such as rent and insurance are $2900 per year, and utilities costs are $140 per month.

Task 1 - Costs of operating the business

Using Excel, create a spreadsheet called *operating_costs.xlsx* that calculates the projected annual outgoing costs of running Parchment Basement.

Your spreadsheet should be configured such that the working hours, hourly rates, and fixed and utility costs can be varied easily.

Document your findings in your ePortfolio page (approximately 100 words).

Obtaining Books

Throughout the day, customers come to Parchment Basement to buy books, and occasionally to sell them.

When people bring in books to sell to Parchment Basement, the staff member on duty will review the books and make an offer for each one individually.

Currently, the process for determining how much the book shop will pay for a book is entirely subjective. Staff members offer an amount per book based on the quality of the book, and how popular they think it is, and how they are feeling at the time.

The sale amount is always simply double the amount paid and is set at the same time - if Parchment Basement pays $3.00 for a book, they will put it on sale with a marked price of $6.00.

(Parchment Basement does not deal in rare or antique books)

For several months, staff have been keeping track of the **date** and **time**, **quality**, **publication year** and **amount paid** for each book in a spreadsheet. This spreadsheet is available for download on Moodle.

Task 2 - Sales team offers

Using Excel, process the history of purchases spreadsheet and use appropriate charts to visualize:

- How the prices paid differed for each staff member; and
- How the prices paid have changed over time

Describe your findings in your ePortfolio (approximately 250 words), and attach the Excel file to your page.

Process automation

April and Barnardo want to improve the consistency of how they pay for and price books.

They'd like to standardize on three standard price offers, and have designed the following process to determine how to allocate them, including the option of rejecting the book altogether.

The staff have already agreed on how to determine whether a book is *terrible*, *poor*, or *good*.

Task 3 - Automation

Using Excel, create a spreadsheet page that automates the above process, allowing a member of the team to enter whether the book is hardcover, its publication year, and its condition, and receive a price to offer.

Ensure that you include enough text and formatting to make your spreadsheet usable by a member of the Parchment Basement team, or by a University lecturer.

Your spreadsheet should be configured such that the Low, Medium and High prices can be varied easily.

Describe how you automated the process (approx 150 words), and attach your Excel file to your ePortfolio.

Task 4 - Price setting

Using Excel and the historical data you have available, determine sets of prices which meet the objectives of the following scenarios:

- Scenario one: Total offer prices are approximately the same as for the historical data
- Scenario two: Assuming all books purchased are sold, allow all staff to draw the same wage as Carolyn.

Describe the strategy you used to find appropriate prices for each scenario (approximately 150 words). Ensure that the Low price is less than the Medium price, and both are less than the High price.

Bonus challenge task (optional!)

Disclaimer: This task is 100% optional, and you can receive full marks without attempting or completing it. It is intended to be a challenge if you are interested in such things, and the marks available do not reflect the significant research and effort required to implement it correctly. Tutors will not provide significant assistance for this challenge task.

Optional task 5

Reimplement Task 1 and Task 3 using either Python or HTML+JavaScript.

Write a brief overview of how to run your solution, and attach a zip file containing your code to your ePortfolio page.

There are **no partial marks** awarded for this bonus task - you must complete all features to attain the bonus marks.

It is possible to attain full marks for this assignment without completing this challenge task.

Further details

Assignment support

This assignment is supported by the first 6 lectures and labs. Work on the assignment should be spread over several weeks after the relevant lab has been mastered.

Submission

All files should be submitted to Moodle by the due date and time. Check with your tutor as to whether a hard copy is required in addition to the electronic submission.

Marking Criteria/Rubric

Refer to the attached marking guide.

Feedback

Feedback will be supplied through Moodle. Authoritative marks will be published through fdlMarks

Plagiarism

Plagiarism is the presentation of the expressed thought or work of another person as though it is one's own without properly acknowledging that person. You must not allow other students to copy your work and must take care to safeguard against this happening. More information about the plagiarism policy and procedure for the university can be found at http://federation.edu.au/students/learning-and-study/online-help-with/plagiarism.

Marking Guide: Assignment 1

Feature	Criteria	Maximum	Obtained
Operating costs	Appropriate projection calculation	2	
	Configurable hours, rates, fixed annual and monthly costs	2	
	Description of findings	1	
	Uses hand-calculated values	(-1)	
Sales team offers	Visualization of prices offered per staff member	2	
	Visualization of change in prices over time	2	
	Description of findings	1	
Automation	Spreadsheet accurately models the BPMN process	4	
	Description of automation	1	
	Unclear instructions	(-1)	
Price setting	Appropriate Low, Medium and High prices for scenario 1	2	
	Appropriate Low, Medium and High prices for scenario 2	2	
	Description of strategy	1	
Bonus optional challenge task	Faithful reimplementation of tasks 1 and 3 using Python or HTML+JavaScript	(+2)	
	Total:	**20**	