

Assignment - Quality Veterinary Hospital

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, 30390093. Do not distribute this specification. If your personal specification is made publicly available online, academic misconduct charges may be applied.

Validation code e3b56

Timelines and Expectations

Percentage value of task: 25%

Due: Refer to Course Description

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

For this assignment, you will complete the following set of tasks using Excel, and create a report to describe your work.

Ensure you submit Excel files created for ALL tasks, along with your report. You may use an ePortfolio, a Word document or a PDF for your report submission.

Scenario details

The following scenario is fictional, and not based on any real business. It is also highly simplified, and should not be used as a basis for a real business management system.

Quality Veterinary Hospital is a small veterinary clinic, working with domestic companion animals. Mostly they work with dogs, cats, and smaller animals such as hamsters and rabbits.

Quality Veterinary Hospital is run by a team of two veterinarians, Archie and Bakari, and one administrative staff member, Cynthia.

Team hours

Most of the time, team members work the following shifts at Quality Veterinary Hospital:

- Archie works **6.5** hours on Mondays, Wednesdays and Fridays;
- Bakari works **6.5** hours on Tuesdays and Thursdays; and
- Cynthia works **3.5** hours every weekday.

Costs

Archie, as the most experienced veterinarian, costs **\$45 per hour** to employ.

Bakari, as a veterinarian, costs **\$38 per hour** to employ.

Cynthia costs **\$30 per hour** to employ.

These rates take into account other costs related to employment, you don't need to add any additional offsets.

All staff are also entitled to **four weeks** of paid annual leave, during which casual replacements are required at a cost of \$49 per hour for the veterinarians and \$39 per hour for Cynthia.

During their leave weeks, Archie, Bakari, and Cynthia continue to be paid.

Fixed costs such as permits, rent, and insurance are **\$16384 per year**, and monthly utility costs (such as electricity and gas) are **\$390** per month.

Task 1 - Wages and Fixed Costs

Using Excel, create a spreadsheet called *operating_costs.xlsx* that calculates the projected annual outgoing costs of running Quality Veterinary Hospital. Only include the above expenses.

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

After building the spreadsheet, use it to answer the following questions in your report:

- What is the projection of *total costs* for the next year, including labour, annual, and monthly costs?
- How much income does Quality Veterinary Hospital need per month to cover the above costs?
- What is the projection of *labour costs only* for the next year, if both veterinarians were to cost \$45 per hour, but the clinic closed on Fridays?

Document your findings in your report (approximately 100 words).

History data

When customers attend *Quality Veterinary Hospital*, they have a consultation with whichever veterinarian is available that day.

In order to improve their business processes, Cynthia has been keeping records of each consultation for several months in a spreadsheet.

This data includes a **date**, the **consultation type**, the **animal type**, the **expenses incurred** (such as tests, protective equipment, and so on) and the **price charged**.

This spreadsheet is available for you to download on Moodle.

Task 2 - Analysis

Using Excel, process the history spreadsheet and use **any approach** to answer the following:

- Which animal type has the fewest emergency visits overall?
- After about two months, the clinic started running a discount day for dog checkups, to try to reduce emergency visits. Which day did they run them on, and were they successful at reducing emergencies?

Support your claims using appropriate analysis or data visualization (approximately 150-200 words).

Task 3 - History visualization

Using Excel, process the history spreadsheet and use **any appropriate charts** to visualize the following:

- How consultations differ **between animal types**;
- How prices or expences have changed **over time**;
- How consultations have differed **between veterinarians**.

You will need to find a way to use Excel to associate each consultation with a staff member.

Describe your approach and your findings in your report (approximately 200-300 words).

Include your visualizations as images. Be sure to use appropriate titles and labels.

Task 4 - Price consistency

The team are unhappy with some of the differences detected above, and would like to make them more consistent.

For **vaccinations** and **check-ups**, the team would like to standardize the prices for each is the same for all small animals (birds, rabbits, and hamsters) and the same for all larger animals (dogs and cats).

Using Excel, analyse the historical data you have available, and **create a spreadsheet** that allows Cynthia to enter the **animal type** and **consultation type**, and gives a **quote amount**.

Ensure that your spreadsheet is **usable** - it should be simple and include appropriate text and formatting to make your spreadsheet easy to use by a member of the Quality Veterinary Hospital team (or by a University lecturer).

It is up to you to determine an appropriate quoting method, however it's vital that the new system doesn't lose money compared to the previous approach.

Describe and justify your approach in your report (approximately 150 words). Include how you tested your solution, and how you made sure the clinic is not worse off under your new approach.

Task 5 - Process improvement

Research the consultation process used in a typical veterinary clinic. Make sure you reference any sources, or indicate if you are basing your work on personal knowledge.

Using BPMN swimlane diagrams, show how the spreadsheet you created in Task 4 can be applied to

improve the processes at Quality Veterinary Hospital.

Justify your approach in your report (approximately 150 words).

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 prioritize assistance for this challenge task.

Optional task 5

Reimplement Tasks 1 and 4 using either Python or HTML+JavaScript.

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

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 8 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 fdIMarks

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: Processes and Automation

Feature	Criteria	Maximum	Obtained
Operating costs	Appropriate projection calculations	3	
	Description of findings	2	
	Uses hand-calculated values	(-1)	
Analysis	Correct and well-supported identification of fewest visits	1	
	Correct and well-supported description of impact of discount day	2	
Visualization	Visualization of difference between animals	2	
	Visualization of changes over time	2	
	Visualization of staff member differences	2	
	Description of approach and findings	2	
Price consistency	Spreadsheet interface for pricing	3	
	Justification of approach	1	
	Explanation of testing	1	
	Evidence that the clinic will not lose money compared to previous approach	1	
	Unclear instructions	(-1)	
Process improvement	BPMN models showing how process can be improved	2	
	Justification of strategy	1	
Miscellaneous penalties	Poor grammar or written English	(-2)	
	Indecipherable file naming scheme	(-1)	
Bonus optional challenge task	Faithful reimplementation of tasks 1 and 4 using Python or HTML+JavaScript	(+2)	
Total:		25	