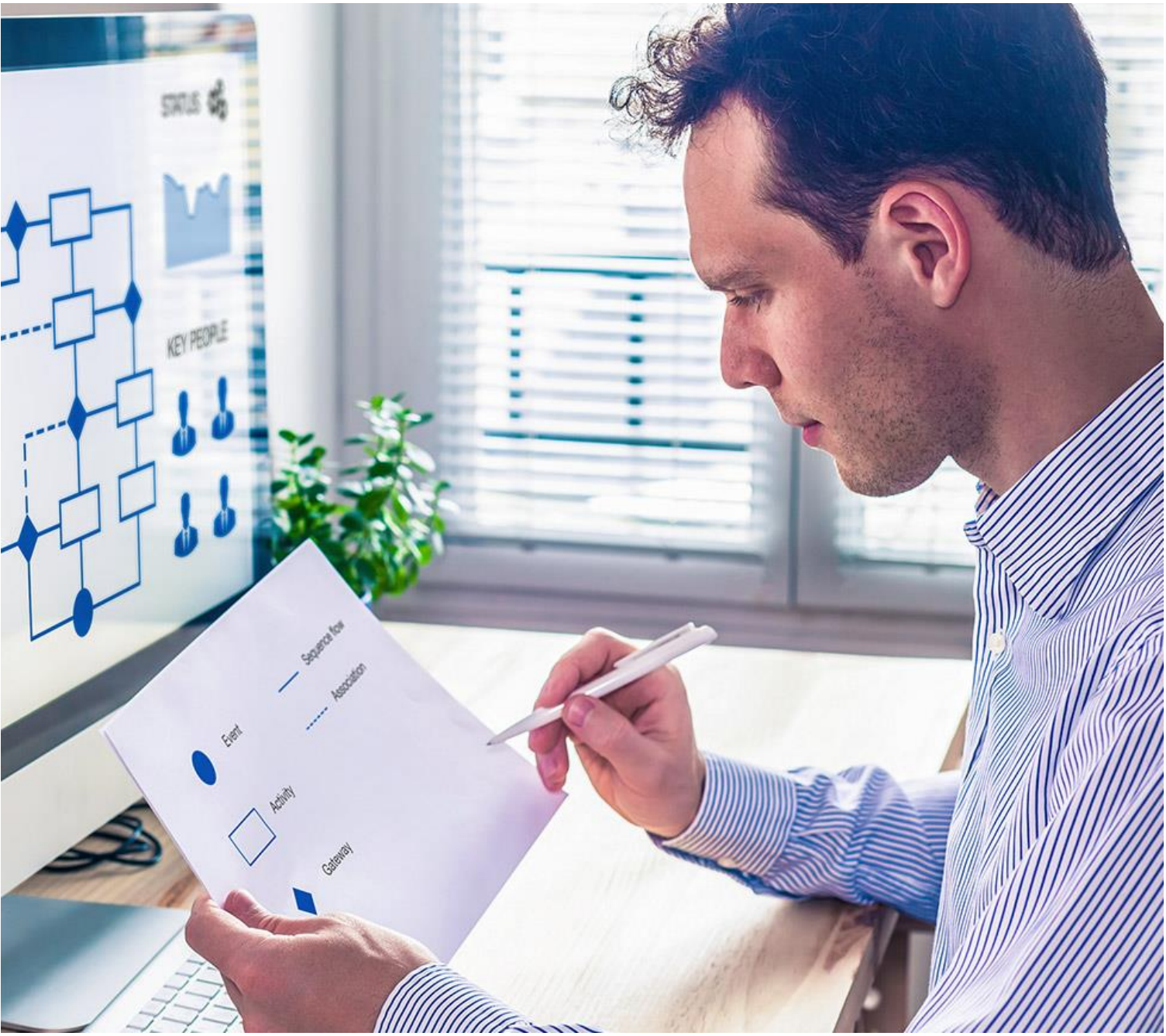

ICTSAD502

Model data processes

Assessment 4 of 5

Portfolio

Assessor Guide

Version 1

Assessment Instructions

Task Overview

This Portfolio assessment is divided into four (4) parts. Read the scenario in Part A and complete the associated tasks in Parts B, C and D. Portfolio tasks include completing simulated workplace documentation.

Please type all responses into the spaces provided.

Important: Before commencing your work, you must update your *Student name* and *Student number* in the footer from **page 2** onwards.

Additional Resources and Supporting Documents

ICTSAD502_04_Portfolio_Scenario documents (compressed/zipped folder) - This folder contains the following scenario documents and templates required for completing the tasks in this assessment.

- AUS Retail_Report_template.docx
- AUS Retail_Procedure for data process modelling.pdf
- Business Process Model and Notation (BPMN)_version 2.0.2.pdf

Assessment Information

Submission

You are entitled to three (3) attempts to complete this assessment satisfactorily. Incomplete assessments will not be marked and will count as one of your three attempts.

All questions must be responded to correctly to be assessed as satisfactory for this assessment.

Answers must be typed into the space provided and submitted electronically via the Learning Platform. Hand-written assessments will not be accepted unless previously arranged with your assessor.

Reasonable adjustment

Students may request a reasonable adjustment for assessment tasks.

Reasonable adjustment usually involves varying:

- the processes for conducting the assessment (e.g. allowing additional time)
- the evidence gathering techniques (e.g. oral rather than written questioning, use of a scribe, modifications to equipment)

However, the evidence collected must allow the student to demonstrate all requirements of the unit.

Refer to the Student Handbook or contact your Trainer for further information.

Please consider the environment before printing this assessment.

Part A: Case study scenario

All tasks in this assessment refer to a simulated environment where conditions are typical of a work environment that is experienced in the systems analysis and design field of work. The scenario relates to a fictitious retail business organisation called '**AUS Retail**'.

Read the case study scenario carefully before completing the tasks in Part B.

A1. Client's business requirements

- **Company background and client requirements**

AUS Retail started as a single retail store based in Sydney, NSW. They now have retail store locations across several other states and territories in Australia and the business continues to grow.

AUS Retail's management wants to further expand the business to an online retail environment. The increasing amount of reports on data breaches and security incidents in the online business space has raised many concerns for AUS Retail's management. Therefore, they want to ensure that security is paramount in designing the online retail system.

The management had specifically requested for a high-level version of the process model of the secure online retail system to be developed initially using 'Context' and 'Level-1 Data Flow' diagrams. Subsequently, they will need a more detailed version of a selected process to be modelled using a 'BPMN' diagram. The management also expects the diagrammatic models and all associated documents prepared for this project to include complete and up-to-date information.

- **Your role**

You work at AUS Retail as a **Systems Design Analyst / Process Modeler**. You are responsible for gathering process data and business information to model relevant data processes for the proposed online retail system for AUS Retail.

- **Current project details**

The key project sponsors are the following AUS Retail stakeholders to whom you must directly report regarding the project's progress.

  - Chief Financial Officer (CFO); Karen Jones [Karen.Jones@ausretail.com.au]
  - Head of Operations; Daniel Brown [Daniel.Brown@ausretail.com.au]

The subject matter experts whom you have been in touch with to request process details are the following two colleagues/clients from AUS Retail:

  - Retail Operations Manager: Sarah Evans [Sarah.Evans@ausretail.com.au]
  - IT and Security Administrator: Alex Dawson [Alex.Dawson@ausretail.com.au]

Previously, you emailed AUS Retail's 'Retail Operations Manager' (Sarah Evans) and 'IT and Security Administrator' (Alex Dawson), asking them to validate the draft versions of the process models you have created.

You have received the following response emails from the 'Retail Operations Manager' and 'IT and Security Administrator'.

You have received the following emails from your clients in response to your validation request.

Email response from the 'Retail Operations Manager'.

From: Evans, Sarah
CC: Dawson, Alex
To: Student Lastname, Student Firstname
Subject: Re. Process model validation

Dear <Student name>,

The context diagram looks fine. However, in the 'Level 1 - Data Flow Diagram', another process for 'Data Analytics and Reporting' should be included.

The reason for having this process is to help with ongoing compliance, reporting on KPIs and continuous improvement. Furthermore, this process needs to be according to the following business rules.

- **Key Performance Indicators (KPIs):** Define the KPIs and metrics for monitoring retail performance, such as sales revenue, conversion rates, customer acquisition cost, and customer lifetime value,
- **Customer engagement** - Data required for engaging with the client. Such as the age of the account, last purchase, geolocation data, product preferences, shopping cart data, etc.
- **Audit Trail:** Maintain an audit trail of data changes, report access, and user interactions for a minimum of five years for compliance and accountability.
- **Continuous improvement:** Customer feedback and satisfaction data are used to drive continuous improvement efforts, including product offerings and user experience enhancements.

Therefore, this process should be able to collect product preference data, customer feedback data, orders and shipment data in real-time to conduct data analytics and produce insights and timely reports for management.

Regarding the BPMN diagram, Alex is the best person to provide feedback, especially regarding IT and security-related processes.

All the best and kind regards,

Sarah Evans
Retail Operations Manager
Sarah.Evans@ausretail.com.au

Before printing this email, please consider the environment.
This message may contain privileged information or confidential information or both and is intended for the recipient named. If you are not the intended addressee, please delete it and notify the sender.

Email response from the IT and Security Administrator

From: Dawson, Alex
CC: Evans, Sarah
To: Student Lastname, Student Firstname
Subject: Re. Process model validation

Dear <Student name>,

I hope this email finds you well. I have reviewed the data model diagrams that you sent through. I agree with Sarah's feedback on the data flow diagram and would like to mention that the 'Data Analytics and Reporting' process will be linked to a separate data store called the 'Analytics database' for storing and retrieving the required data for that process. This is a new database we are hoping to design and develop as part of the online retail system's implementation.

Regarding the BPMN diagram, I have noticed the following inaccuracies and changes that need to be made.

To ensure the confidentiality of the customer's personal details and login credentials and to comply with data protection regulations, the following elements must be added to the BPMN diagram.

- Include a service task after the customer data is collected to ensure data is encrypted for protection. This service is responsible for encrypting customer's sensitive information.
- After encryption, the data is securely stored in a separate database called 'SecureDB'.
- After data encryption, parallel to the data validation, there should be another business-rule task for checking security. This includes implementing security measures according to the following business rules:
- **Identity verification:** This is done by using CAPTCHA and multi-factor authentication to deter automated attacks.
- **AML/KYC Compliance:** This ensures compliance with Anti-Money Laundering (AML) and Know Your Customer (KYC) regulations by verifying customer identities against watchlists and government databases.

I realised that the above-mentioned business rules and those that Sarah had mentioned were not included in the business rules specification document I had previously shared with you. So, I would appreciate it if you could update all the specification documents with complete and up-to-date information on business rules and process details. You may also need to evaluate the impact on the process models based on this new information and make the required corrections to the diagrams.

I'm happy to review the process models again once the changes are done.

All the best and kind regards,

Alex Dawson
IT and Security Administrator
Alex.Dawson@ausretail.com.au

AUS Retail

Before printing this email, please consider the environment.
This message may contain privileged information or confidential information or both and is intended for the recipient named. If you are not the intended addressee, please delete it and notify the sender.

A2. Working environment

You will work in an online workspace, where you must collaborate with stakeholders using appropriate computer technology and special-purpose tools as outlined in sections A3 and A4.

You must demonstrate consistent performance whilst working from home under safe conditions. Therefore, set up your computer equipment safely before commencing work according to workstation-set-up_infographic_july2023.pdf (safeworkaustralia.gov.au).

Note: It is expected that when working from home, you are likely to experience interruptions due to noise levels, production flow and time variances typical of those experienced in a work-from-home environment.

A3. Special-purpose tools, equipment and resources

To carry out the assigned job tasks in the systems analysis and design field of work:

- you must have access to special-purpose tools and equipment such as:
    - a computer installed with an operating system (preferably Windows)
    - a reliable internet connection

- you are provided with the following organisational resource documents and templates.
    - **AUS Retail_Report_template.docx** – This template is referred to in the 'AUS Retail_Stakeholder communications policy.pdf' and must be used when preparing any type of report or associated documentation for AUS Retail's stakeholders.

- **AUS Retail_Procedure for data process modelling.pdf** - Includes information on process modelling procedures and methodologies that should be followed.
- **Business Process Model and Notation (BPMN)_version 2.0.2.pdf** – This is an industry-standard specification document for creating BPMN process models. The latest version of this document can be obtained by visiting https://www.bpmn.org/.

A4. Industry software packages

You must use the following industry software packages to carry out the job tasks assigned to you.

- Web browsing software (e.g. Microsoft Edge, Firefox, Chrome, Safari)
- Microsoft Office software (e.g. WORD, Excel)
- A PDF reader
- Process modelling tool/software/platform
  Note: You may use a tool/software/platform listed below or another industry-accepted platform/tool that supports the latest version of Business Process Model Notation (BPMN) standard
  - BPMN Editor | bpmn-js modeler Demo | demo.bpmn.io (Long URL: https://demo.bpmn.io/new)
  - Download The Camunda BPMN / DMN Process Modeler | Camunda (Long URL: https://camunda.com/download/modeler/). Refer to About Modeler | Camunda Platform 8 Docs for more information on this platform and how to use it.
  - Visual Paradigm Online (visual-paradigm.com) (Long URL: https://online.visual-paradigm.com/app/diagrams/#diagram:proj=0&type=BusinessProcessDiagram&width=11&height=8.5&unit=inch)

Part B: Determine impact on process models

To complete this part of the assessment, you are required to:

- read the scenario details and the data model validation feedback received from clients
- refer to the relevant industry and organisational standards and reference documents
- use new digital technologies and applications to manage and manipulate process data
- apply systematic and analytic decision-making processes to understand and review the requested changes to the process models.

Tasks:

Review business rules to determine the impact on process models according to the response emails received from the clients.

Use the table below to document your evaluation of the changes that must be made to the data models based on the validation feedback.

For each type of data model diagram listed in 'Table 1', you must:

1. state the inaccuracies identified by the client in 'Column A'
2. review and list the business rules that apply to the requested changes in 'Column B'
3. outline the impact on the process models and the changes required to be made in 'Column C' (Approximate word count: 15-60 words for listed diagrams in which inaccuracies have been identified)

Note: You may state 'None' in columns A, B and C if no inaccuracies were identified by the client for any of the listed data model diagram types.

Answer:

Assessor instructions: Assessors are to indicate the task result as Satisfactory (S) or Not Yet Satisfactory (NYS).

Assessor comments:	☐ S	☐ NYS

The student must:

- review the business rules to determine the impact on process models and change as required
- apply systematic and analytical decision-making processes to understand the requested changes by the client and to decide if/what changes must be made to the data models.

The student may use different wording in their responses. However, the acceptable responses must:

- be within the specified word limit (Exception: 'None' should be stated for the 'Context diagram' row.)
- reflect the characteristics described in the exemplar answer.

A sample answer is provided below.

Table 1

Data model diagram	Column A Inaccuracies identified by the client	Column B List of business rules that apply	Column C Impact on the process models and changes required
Context Diagram	None	None	None
Level-1 Data Flow Diagram	Missing process, datastore and relevant directional flows	Key Performance Indicators (KPIs) Customer engagement Audit Trail Continuous improvement	Add a new process for 'Data Analytics and Reporting'. Add a new datastore, ' Analytics Database'. Requires directional data flows from the 'Customer registration and accounts management', 'Shopping cart and checkout' and 'Order fulfilment and shipping' processes. Requires directional data flows to and from the 'Analytics Database' data store.
BPMN Diagram	Missing service task, business rule task, data store and parallel process flow	Identity verification AML/KYC Compliance	Add a new service task, 'Encrypt Data' that links to the new 'SecureDB' datastore after the 'Collect user details' user task. Add a parallel gateway to the 'Encrypt Data' service task to accommodate the 'Security Check' business rule task. It may require adding more elements, such as exclusive gateways, process termination events and annotations, to provide further explanations.

Part C: Make requested changes to the process models

To complete this part of the assessment, you are required to:

- refer to the relevant industry and organisational standards and reference documents
- use new digital technologies and applications to manage and manipulate process data
- apply systematic and analytic decision-making processes to action the requested changes to the process models.

Tasks:

Task C1

Incorporate the identified changes to the 'Level-1 Data Flow Diagram' developed as part of the previous assessment (ICTSAD502_03_Portfolio, Task C2), according to the validation feedback from the 'Retail Operations Manager' at AUS Retail.

Note: Use the same industry-standard process mapping software/application/tool you used in the previous assessment task (i.e. ICTSAD502_03_Portfolio, Task C3), and make changes to the original version of the data flow diagram.

Answer:

Assessor instructions: Assessors are to indicate the task result as Satisfactory (S) or Not Yet Satisfactory (NYS).

Assessor comments:	☐ S	☐ NYS

The student must:

- apply systematic and analytical decision-making processes when making changes to the data model
- use the correct representations and shapes when making changes to the data flow diagram according to the guidelines provided under section 3.3 of 'AUS Retail_Procedure for data process modelling.pdf' document.
- use applications or platforms such as diagrams.net (draw.io), https://app.creately.com/ or any other suitable tool to make changes to the draft version of the diagrammatic model.

The student may use a different application/tool/platform to produce diagrammatic models. However, the acceptable diagrammatic model must:

- include a new process called 'Data Analytics and Reporting'
- include a new data store called 'Analytics Database'
- represent the data flows and relationships between the relevant processes and data store using directional arrows
- overall, reflect the characteristics as shown in the exemplar answer (e.g. appropriate labelling of items, consistency in the use of shapes, etc.).

A sample drawing of the corrected Level 1 Data Flow Diagram (DFD) is provided below.

Note: The significant changes made to the diagram are highlighted in yellow for assessor reference.

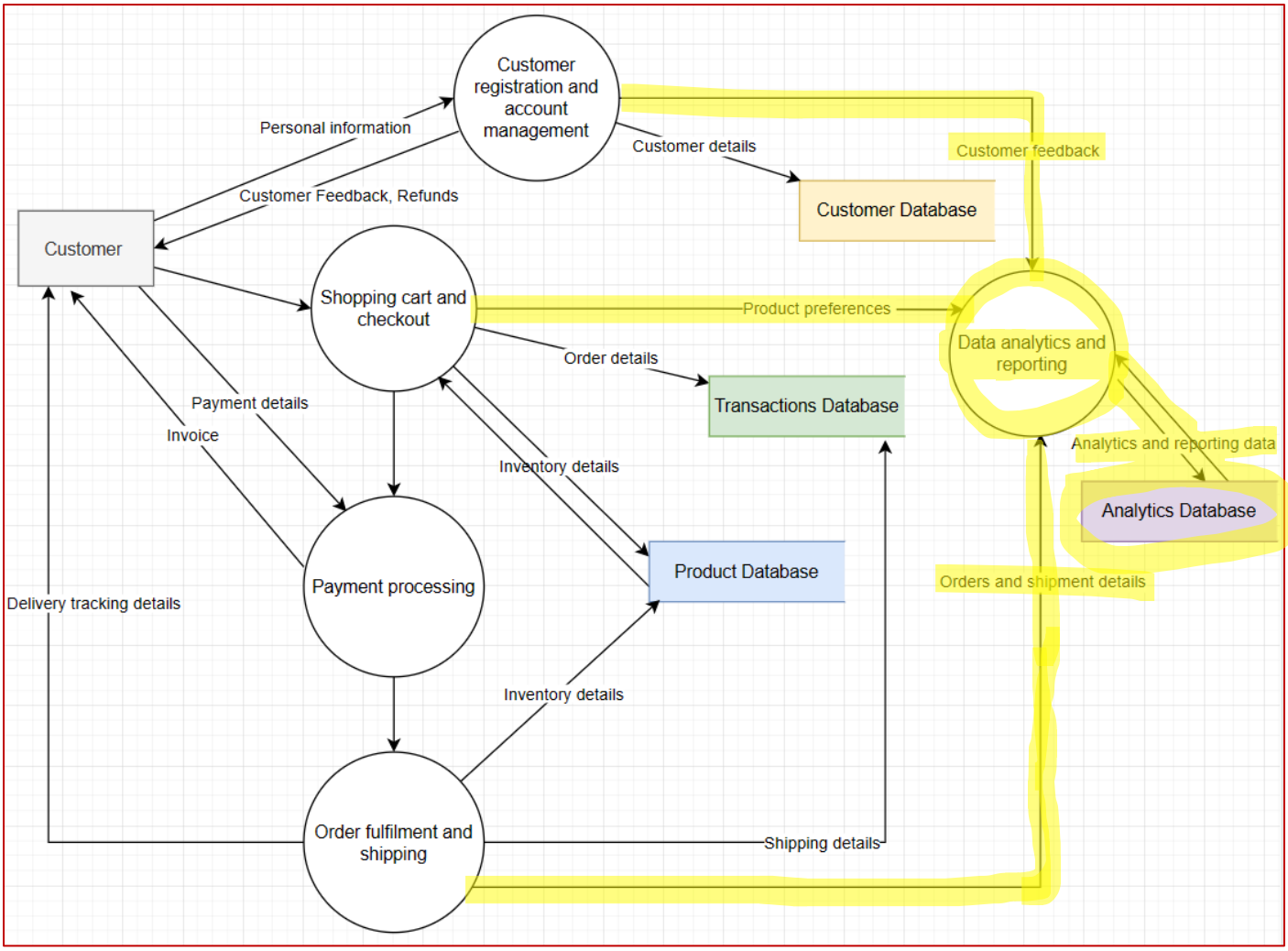

Figure 1 – Updated Context Diagram, created using https://app.diagrams.net

Task C2

Incorporate the identified changes to the BPMN diagram developed as part of the previous assessment (ICTSAD502_03_Portfolio, Task C3), according to the validation feedback received from AUS Retail's 'IT and Security Administrator'.

Note: Use the same industry-standard BPMN process mapping software/application/tool you used in the previous assessment task (i.e. ICTSAD502_03_Portfolio, Task C3), and make changes to the original version of the BPMN diagram.

Answer:

Assessor instructions: Assessors are to indicate the task result as Satisfactory (S) or Not Yet Satisfactory (NYS).

Assessor comments:	☐ S ☐ NYS

The student must:

- apply systematic and analytical decision-making processes when making changes to the data model
- use the correct BPMN specification according to the industry standard

- use applications or platforms such as 'Camunda modeler', 'bpmn editor' (https://demo.bpmn.io/) or any other suitable application/tool/platform to make changes to the previous version the diagrammatic model.

The student may use a different application/tool/platform to produce diagrammatic models. However, the acceptable diagrammatic model must:

- include the new service task 'Encrypt Data' and a business rule task 'Security Check'.
- represent an association with the 'SecureDB' data store.
- include a parallel gateway and addition of other required sequence flows
- overall, reflect the characteristics as shown in the exemplar answer (e.g. appropriate labelling of items, consistency in the use of model elements, etc).

A sample drawing of the corrected BPMN diagram is provided below.

Note: The significant changes made to the diagram are highlighted in yellow for assessor reference.

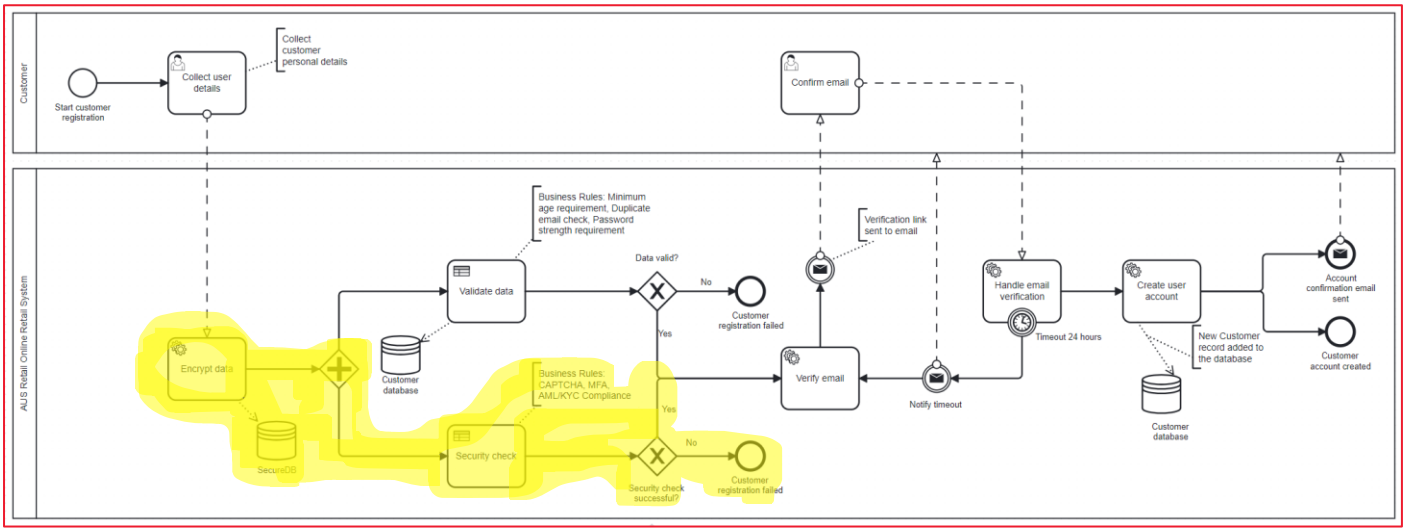

Figure 2 - BPMN diagram of the corrected 'Customer Registration' process created using Camuda Modeler

Part D: Complete documentation of the data model

To complete this part of the assessment, you are required to:

- refer to the following completed assessment tasks to gather the required information to complete the documentation.
  - ' ICTSAD502_02_Case Study'
  - Part B of 'ICTSAD502_03_Portfolio'
  - Parts B and C of this assessment
- refer to 'AUS Retail_ Stakeholder communication policy.pdf'> section '5.4. Reports' and use the recommended template when preparing the associated documentation
- take responsibility for planning and sequencing this complex documentation task and its associated workload.

Task:

Use AUS Retail's report template to complete data process model documentation that includes the following.

- **Cover page:** Outline the project name in the title, your full name and date
- **Contents:** An up-to-date list of all document sections.

- **Table of Figures:** An up-to-date list of all numbered figures/diagrams with page numbers
- **Introduction:** Outline the project details, purpose, scope and modelling methodology.
  Note: Refer to the information gathered in ' ICTSAD502_02_Case Study' assessment of this module.
- **Data process model overview:** Include up-to-date information on process data gathered and the latest versions of the process model diagrams.
  Note: Refer to the information gathered in Part B of 'ICTSAD502_03_Portfolio' and update as required to incorporate the validation feedback received from the clients in 'Part A' of this assessment.
- **Conclusion:** Provide a summary of the data model, lessons learned and feedback for future data modelling projects.
- **Appendices:** Use this section to provide up-to-date details of the data flow specifications and business rules received from the clients.

Save the completed process model documentation as:

- '**<StudentNumber>_ICTSAD502_04_Data process model documentation_ddmmyyyy**'

Note: You must save this document as 'PDF' before submitting it. Refer to the 'Submission instructions' section for more information.

Evidence of completing the task:

Your assessment submission must include the completed documentation in PDF format:
'**<StudentNumber>_ICTSAD502_04_Data process model documentation_ddmmyyyy**'

Assessor instructions: Assessors are to indicate the task result as Satisfactory (S) or Not Yet Satisfactory (NYS).

Assessor comments:	☐ S	☐ NYS

The student must:

- complete documentation of the data model
- produces and prepares diagrammatic models and associated documents that convey complex relationships between data
- demonstrate acceptance of responsibility for planning and sequencing complex tasks and workload related to preparing the data model documentation.

The acceptable data model documentation submitted by the student must:

- use the organisational template' AUS Retail_Data process model documentation_template.docx'
- have all document sections completed with relevant information as detailed in the task (e.g. document cover page, contents, table of figures, introduction, data process model overview, conclusion, appendix)
- include up-to-date versions of the data model diagrams in the 'Data process model overview' section and with reference to their page numbers under the 'Table of Figures'.

Appendix 1: Assessment submission checklist

Submit a PDF version of this completed assessment document. Make sure you have also included each of the following files as evidence of your performance. Remember to create a compressed folder for each module before uploading them for submission.

Part B: Determine impact on process models		
1-3	Completed 'Table 1'	☐
Part C: Make requested changes to the data model		
C1	Level 1 Data Flow Diagram – updated version (feedback actioned)	☐
C2	BPMN diagram – updated version (feedback actioned)	☐
Part D: Complete documentation of the data model		
Submission of the completed data model documentation		☐

Congratulations, you have reached the end of Assessment 4!

Assessment feedback

Assessors are to indicate the assessment outcome as Satisfactory (S) or Not Yet Satisfactory (NYS).

Assessor comments:	☐ S	☐ NYS