

Final Test Enterprise Application Development 2023A

Total marks: 30

Time: 12 hours

Start: 9am 27th May

End: 9pm 27th May

Late submission: every 1 hour late submission will result in 15% mark deduction.

***Note:** Students who have another test or presentation during this time frame will get extra hours. The ratio will be 1 hour test/presentation = 1.5 hour extra.*

Please submit the evidence along with your submission in the comment section of Canvas submission. Evidence includes email, announcement, or equivalent to document that you spent time for other assessment.

Rules:

1. Students can use Canvas and Internet for reference and other AI generator tools such as Copilot and ChatGPT. No discussion or exchange of ideas, external support is allowed.
2. **Students put all the answer files into a folder, zip it and submit the zipped file. Students also download this online document as a docx file and suffix the file with their name. Students provide the link (or screenshots) of their work in this file and submit together with the source code zip file.**
3. Sharing or disclosing lab test questions to forums, Q&A platforms are prohibited.
4. Students should make their own assumptions based on common sense. Please don't ask questions that are common sense and straightforward as it can slow down your progress.

Question 1 (15 marks). (Frontend) Build a web application that displays overviews of countries around the world.

- The country API can be accessed here for free without API key needed:

<https://restcountries.com/v3.1/all>

- Students can use any frontend frameworks including pure CSS, Bootstrap, AngularJS, ReactJS etc.
- Students are free to come up with their own design but the app should follow the common web design: UI, UX, responsive.
- Expected features:

a) (10 marks) Landing page

- + The web should display a list of all countries with basic info (up to 10 attributes). Must show flags
- + A search should allow by country name
- + A filter by region and subregion (should be combine with search)
- + A filter by population range: 0-5, 5-10, 10-50, 50-100, >100 millions
- + A sort by population and countries name
- + A pagination bar

b) (5 marks) Detailed page

- + The detailed page should display all information about the selected country.
- + There are links to show similar countries based on equivalent population, same regions, shared border, same language etc. This is similar like you visit a shopping website and they often suggest similar products or books.

Students pastes all the screenshots of their answers below:

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Question 2 (15 marks). (Fullstack) Build a fullstack enterprise application for production management.

A company needs a software system to manage their manufacturing so you get contracted to build the app for them. The app must use Spring framework for the backend and for the frontend it is open.

Production management system is a complex field with lots of new terms, processes, and workflows. In this contract, you build a simple system with a simple workflow.

The first important form you must develop is to manage the product list. A product will have an id, name, unit, images, and price, and a category which can be a finished product or components or raw materials.

A product will need many components in order to be built as a complete product. This structure is called the Bill of Materials.

When a manufacturing order is made, the system will check inventory of components or materials to see if they are available. If not, a purchase order will be made. If all the components and materials are ready, users will confirm the manufacturing order. The status of manufacturing order is changed to Confirmed

Then workers start to produce. The status of manufacturing order is changed to In-progress. During the production process, users and workers can take logs with text and pictures to let other people know about the progress. Once it is done, workers mark the status of manufacturing order as Done.

More information about Products and Bill of materials setups:

https://www.youtube.com/watch?v=PjZJVKT_AF4&t=442s

Manufacturing order:

https://www.youtube.com/watch?v=PjZJVKT_AF4&t=780s

Students to build the following features:

A) (5 marks) Product Management

- Product management including add, update, delete, list view all the products. Filter product by category, search product by name.
- Product list can be shown by table view or icon view:

Add product:

SAVE DISCARD

UPDATE QTY ON HAND REPLENISH

0.000 Unit(s) On Hand 0.000 Unit(s) Forecasted Product Moves 0 Reordering... Routes 1 Bill of Mat... 0.00 Unit(s) Manufactu... More

Product Name

Wooden Airplane Toy



☒ Can be Sold

☐ Can be Purchased

General Information

Variants

Sales

Inventory

Product Type Storable Product

Product Category Finished Goods

Internal Reference

Barcode

Sales Price \$50.00

Customer Taxes

TaxCloud Category

Cost \$0.00

Unit of Measure Unit(s)

Purchase Unit of Measure Unit(s)

Internal Notes

This note is only for internal purposes.

Icon view:














Products		Products	Product Category
CREATE	IMPORT	Filters	Group By
Components		Finished Goods	
<div>  <div> Helicopter (missing the Propeller) Price: \$ 1.00 On hand: 100.000 Unit(s) </div> </div>		<div>  <div> Wooden Airplane Toy Price: \$ 50.00 On hand: 0.000 Unit(s) </div> </div>	
<div>  <div> Helicopter Propeller Price: \$ 1.00 On hand: 0.000 Unit(s) </div> </div>		<div>  <div> Wooden Helicopter Toy Price: \$ 1.00 On hand: 0.000 Unit(s) </div> </div>	
<div>  <div> Wooden Airplane Body Piece Price: \$ 0.00 On hand: 10.000 Unit(s) </div> </div>		<div>  <div> Wooden Rocket Toy 3 Variants Price: \$ 1.00 On hand: 0.000 Unit(s) </div> </div>	
<div>  <div> Wooden Axle Price: \$ 1.00 On hand: 10.000 Unit(s) </div> </div>		<div>  <div> Green Paint Price: \$ 1.00 On hand: 100.000 Liter(s) </div> </div>	
<div>  <div> Wooden Propeller Price: \$ 0.00 On hand: 10.000 Unit(s) </div> </div>		<div>  <div> Red Paint Price: \$ 1.00 On hand: 100.000 Liter(s) </div> </div>	
<div>  <div> Wooden Rocket Body (Unpainted) Price: \$ 1.00 On hand: 50.000 Unit(s) </div> </div>		<div>  <div> White Paint Price: \$ 1.00 On hand: 100.000 Liter(s) </div> </div>	
<div>  <div> Wooden Wheel Price: \$ 0.00 On hand: 10.000 Unit(s) </div> </div>			

Table view:

Products

Products x Search

CREATEIMPORT

▼ FiltersGroup By★ Favorites

1:15 / 15<>☰☰

<input type="checkbox"/>	Internal Reference	Name	Sales Price ▼	Cost	Product Category	Product Type	Quantity On Hand	Forecasted Quantity	Unit of Measure
<input type="checkbox"/>	+	Wooden Airplane Body Piece	0.00	12.00	Components	Storable Product	10.000	10.000	Unit(s)
<input type="checkbox"/>	+	Wooden Propeller	0.00	4.00	Components	Storable Product	10.000	10.000	Unit(s)
<input type="checkbox"/>	+	Wooden Wheel	0.00	1.00	Components	Storable Product	10.000	10.000	Unit(s)
<input type="checkbox"/>	+	Wooden Wing Piece	0.00	8.00	Components	Storable Product	10.000	10.000	Unit(s)
<input type="checkbox"/>	+	Green Paint	1.00	5.00	Paint	Storable Product	100.000	100.000	Liter(s)
<input type="checkbox"/>	+	Helicopter (missing the Propeller)	1.00	20.00	Components	Storable Product	100.000	100.000	Unit(s)
<input type="checkbox"/>	+	Helicopter Propeller	1.00	0.00	Components	Storable Product	0.000	0.000	Unit(s)
<input type="checkbox"/>	+	Red Paint	1.00	5.00	Paint	Storable Product	100.000	100.000	Liter(s)
<input type="checkbox"/>	+	Wheel Subassembly	1.00	0.00	Subassembly	Storable Product	45.000	45.000	Unit(s)
<input type="checkbox"/>	+	White Paint	1.00	4.00	Paint	Storable Product	100.000	100.000	Liter(s)
<input type="checkbox"/>	+	Wooden Axle	1.00	1.00	Components	Storable Product	10.000	10.000	Unit(s)
<input type="checkbox"/>	+	Wooden Helicopter Toy	1.00	0.00	Finished Goods	Storable Product	0.000	0.000	Unit(s)
<input type="checkbox"/>	+	Wooden Rocket Body (Unpainted)	1.00	0.00	Components	Storable Product	50.000	50.000	Unit(s)
<input type="checkbox"/>	+	Wooden Rocket Toy	1.00	0.00	Finished Goods	Storable Product	0.000	0.000	Unit(s)
<input type="checkbox"/>	+	Wooden Airplane Toy	50.00	0.00	Finished Goods	Storable Product	0.000	0.000	Unit(s)

Students pastes all the screenshots of their answers below:

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B) (5 marks) Bill of Materials

One product will have one bill of materials. Form to define a bill of materials is as follows:

Products / Wooden Airplane Toy / Bill of Materials / Wooden Airplane Toy

EDIT **CREATE** Print ▾ Action ▾

Structure & Cost

Active

Product

Wooden Airplane Toy

Reference

BoM Type

Product Variant

1.00 Unit(s)

BoM Type

Manufacture this product

Components


Miscellaneous

Component	Quantity	Product Unit of Measure	Apply on Variants
Wooden Airplane Body Piece	1.000	Unit(s)	
Wheel Subassembly	1.000	Unit(s)	
Wooden Wing Piece	2.000	Unit(s)	








Products / Wooden Airplane Toy / Bill of Materials / Wooden Airplane Toy

SAVE DISCARD

Structure & Cost Active

Product: Wooden Airplane Toy  Reference:
 Product Variant:
 Quantity: 1.00 Unit(s)
 BoM Type: ☒ Manufacture this product ☐ Kit

Components Miscellaneous

Component	Quantity	Product Unit of Measure	Apply on Variants
+ Wooden Airplane Body Piece 	1.000	Unit(s)	
+ Wheel Subassembly 	1.000	Unit(s)	
+ Wooden Wing Piece 	2.000	Unit(s)	
Add a line 			

Students pastes all the screenshots of their answers below:

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C) (3 marks) Manufacturing order:

Add a manufacturing order:

Manufacturing Orders / New

SAVE DISCARD

CANCEL **CONFIRMED** IN PROGRESS DONE

New

Product

Quantity To Produce

Bill of Material

Consumed Materials

Deadline Start 11/13/2018 11:14:01

Responsible Brett DemoTester

Source

Product	Unit of Measure	Tracking	To Consume	Reserved	Consumed

Manufacturing Orders / WH/MO/00001

EDIT CREATE

Print Action

CHECK AVAILABILITY PRODUCE CANCEL SCRAP UNLOCK **CONFIRMED** IN PROGRESS DONE

WH/MO/00001

Product Wooden Airplane Toy

Quantity To Produce 1.000 Unit(s) **Update**

Bill of Material Wooden Airplane Toy

Deadline Start 11/13/2018 11:14:01

Responsible Brett DemoTester

Source

Consumed Materials Finished Products Miscellaneous

Product	Unit of Measure	Tracking	To Consume	Reserved	Consumed
Wooden Airplane Body Piece	Unit(s)	<input type="checkbox"/>	1.000	0.000	0.000
Wheel Subassembly	Unit(s)	<input type="checkbox"/>	1.000	0.000	0.000
Wooden Wing Piece	Unit(s)	<input type="checkbox"/>	2.000	0.000	0.000

Students pastes all the screenshots of their answers below:

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D) (2 marks) Logs message about the status:

Manufacturing Orders / WH/MO/00001

EDITCREATE

PrintAction

1 / 1<>

MARK AS DONE

SCRAP

UNLOCK

CONFIRMED

IN PROGRESS

DONE

Send message

Log note

Schedule activity

1

Inventory Moves

WH/MO/00001

Product

Wooden Airplane Toy

Deadline Start

11/16/2018 11:14:01

Quantity To Produce

1,000 Unit(s)

Update

Responsible

Brett DemoTester

Bill of Material

Wooden Airplane Toy

Source

Consumed Materials

Finished Products

Miscellaneous

Product	Unit of Measure	Tracking	To Consume	Reserved	Consumed
Wooden Airplane Body Piece	Unit(s)	<input type="checkbox"/>	1,000	1,000	1,000
Wheel Subassembly	Unit(s)	<input type="checkbox"/>	1,000	1,000	1,000
Wooden Wing Piece	Unit(s)	<input type="checkbox"/>	2,000	2,000	2,000

i am in the middle of building this @Brett DemoTester

LOG

Today

Brett DemoTester

State: Confirmed → In Progress

Brett DemoTester

Quantity To Produce: 1

State: Confirmed

Brett DemoTester

Production Order created

Students pastes all the screenshots of their answers below:

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Good luck to everyone!!!!

End of the test