SCHOOL OF ENGINEERING, COMPUTING AND BUILT ENVIRONMENT

DEPARTMENT OF COMPUTING

DIPLOMA IN COMPUTER STUDIES/ DIPLOMA IN INFORMATION TECHNOLOGY

[DSA 1214 Object Oriented System Analysis and Design]

[LECTURER'S NAME]
Dr. Justtina John

Assignment 2

[STUDENT NUMBER & STUDENT NAME]

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ASSIGNMENT 2

Module Title:	*Object- Oriented System Analysis and Design*
Module Number:	*DSA1214*
Module Tutor Name(s):	*Dr. Justtina John*
Academic Year:	*Semester September 2020*
% Weighting (to overall module):	*20%*
Due Date	*Week 12- 1/12/2020*
Learning Outcome	*CLO2: Draw and interpret various UML analysis and design diagram; including Use Case diagram, Use Case description, Activity diagram, Class Diagram, Communication diagram, Sequence Diagram).*

Dates and Mechanisms for Assessment Submission and Feedback

Mechanism for Handout to Students: *via Canvas*
Mechanism for Submission of Work by Student: *Softcopy online submission via Canvas.*
Date by which Work, Feedback and Marks will be returned to Students: 3 weeks after the submission.
Mechanism for return of assignment work, feedback and marks to students: Feedback will be provided by a marking template. This will be available to students via Canvas. The discussions at the walkthroughs will also provide informal feedback.

General Information

This assignment includes **group and individual components**.

Question 1-4 to be completed as groups, a maximum of 5 students per group. Question 5 should be completed individually.

Only one submission per group. This will contain both the group and individual elements. The individual element must be clearly labelled to indicate which group member completed them.

Academic Integrity Statement: You must adhere to the university college regulations on academic conduct. Formal inquiry proceedings will be instigated if there is any suspicion of plagiarism or any other form of misconduct in your work. Students must **NOT** collude with other groups of students or plagiarize their work.

Diagrams may be used where they are helpful to support your arguments or description. If they are not your own work, the source must be referenced. Please help us to handle and mark your work efficiently. Clearly label your assignment in the cover page.

Documentation guidelines

Written to a professional standard using MS Word and show appropriate and consistent use of type, fonts and line spacing (for this assignment use Arial 12 and single spacing) and page layouts(Justify). Give each page a footer (font size 8) that includes the group name, module code, and page number.
Penalties for Late Submission: For late submission of this Assignment, a penalty of a reduction by 10% of the maximum mark may be applicable for each Calendar Day or part thereof that the submission is late. An Assignment submitted more than **TEN** Calendar Days after the deadline will have a mark of zero recorded for this Assignment.

Submission arrangement

1. Front page
2. Table of Content
3. Main Report (Question1-5)
4. Bibliography List
5. Marking Rubric

Assignment Scenario

Questions are related to the scenario used in assignment 1.

Task:

Based on the scenario used in assignment 1, you are required to analyse and document the following:

Question 1
Derive a use case diagram for this system, only one diagram. Your model should have at least six use cases or sufficient use cases to represent main functionalities. Apply generalization, include and extend features where appropriate. (20 marks- Group)

Question 2
Each group member should write a different use case description for one of the use cases from the use case diagram. Please select use cases which are complicated enough to require alternative and exceptional scenarios. The use case description used and provided in the class slide may not be chosen. (20 marks- individual)

Question 3

Derive a class diagram for the proposed system. Classes should be sensibly named and the appropriate attributes and operations are allocated to classes. Include plausible relationships types, names and multiplicity. (20 marks- group)

Question 4

Derive an activity diagram for the proposed system. Select any **three** use cases to draw the activity diagram. Please include partitions for the actors involved and the system. You do not need to include object flows. Please remember to label diagram with the selected use case name.   (30 marks-Group)
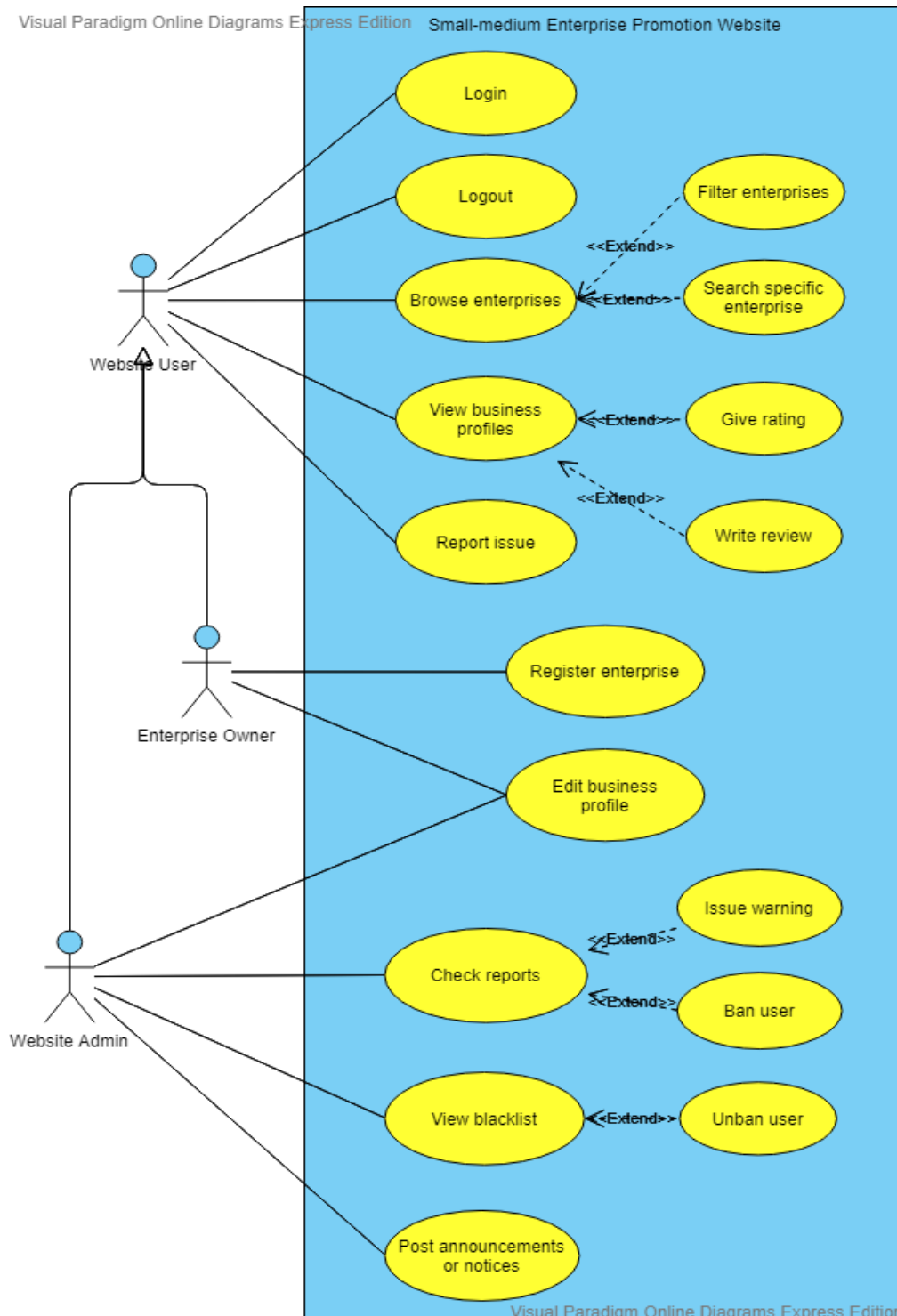
Table of Content

Main Report

Question 1

Use Case Diagram

Question 2

Use Case Descriptions

THOR WEN ZHENG

Use Case	Register enterprise
Summary	This use case deals with the registration of an enterprise on the website
Actor	Enterprise Owner
Trigger	Enterprise Owner wants to promote his or her small-medium enterprise on the website
Primary Scenario	1. Enterprise owner acquires digital registration form. **[Exceptional: Enterprise owner is banned from registering enterprise]**
	2. Enterprise owner enters relevant and required information of enterprise.
	3. Enterprise owner attaches business registration certificate by the Companies Commission of Malaysia.
	4. Enterprise owner submits registration form.
	5. Enterprise owner waits for registration approval by relevant admins.
	6. Upon approval, enterprise owner is notified. **[Alternative: Registration is not approved]**
	7. Use case terminates.
Alternative Scenario	**Registration is not approved** 1. Registration form is returned to enterprise owner. 2. Reasons for rejection of registration are sent to enterprise owner. 3. Use case terminates.
Exceptional Scenario	**Enterprise owner is banned from registering enterprise** 1. System notifies enterprise owner that he or she is banned. 2. Enterprise owner is redirected to main page. 3. System notifies enterprise owner of option to appeal for unban. 4. Use case terminates.
Pre-Conditions	1. Enterprise must not be already registered in the database. 2. Enterprise owner must be logged in.
Post-Conditions	1. Enterprise database is updated. 2. Enterprise is listed on the website.
Assumptions	1. System is functioning normally. 2. WiFi is working.

LIM ZHE YUAN

Use Case	Edit business profile
Summary	This use case deals with any triggered events when enterprise owners or website admins edit information in business profiles.
Actor	Enterprise owner, website admin
Trigger	Enterprise owners or website admins press a button that indicates the edit function.
Primary Scenario	1. Enterprise owner or website admin make the new changes to the targeted media. **[Alternative: Delete media]** 2. System validates all of the new changes made to the medias in the business profile. **[Exceptional: Required input fields are empty]** 3. System updates all of the business information in the database with the new changes. 4. System updates all of the business profile content on the website with the new changes. 5. Use case terminates.
Alternative Scenario	**Delete media** 1. Enterprise owner or website admin choose the media to be removed from the business profile. 2. System removes the media from the business profile and updates the profile. 3. Use case terminates.
Exceptional Scenario	**Required input fields are empty** 1. System throws an error saying there are required input fields that are empty. 2. System returns to the edit profile interface. 3. Primary scenario continues again from step 1.
Pre-Conditions	1. Website admin or enterprise owner must be logged in to the website when making the edits. 2. Content to be edited contains misinformation and/or inappropriate.
Post-Conditions	1. Content is instantly renewed without page reload. 2. Website structure and design are not negatively affected.
Assumptions	1. System is functioning properly. 2. Business exists in the system database.

TAN CHIN HUAI

Use case	Browse Enterprises
Summary	This use case manages the browsing of enterprises on the website
Actor	User
Trigger	User wants to search and filter small-medium enterprises to obtain promotion details.
Primary Scenario	1. User enters the name of the enterprise. [**Alternative**: Filter enterprise name] 2. The system fetches information about enterprise names from the database. [**Exceptional**: Enterprises is not found] 3. The system displays the enterprise name on the user's device. 4. The use case terminates.
Alternative Scenario	Filter enterprise name 1. User press the filter function to search for enterprise names that start with a certain alphabet. 2. The system displays the name list of enterprises that starts with the selected alphabet.
Exceptional Scenario	Enterprises is not found 1. Enterprises have been removed. 2. Enterprises do not exist. 3. The primary scenario continues from step 1. Wrong information is entered 1. The system will notify the user in case incorrect data is entered. 2. User removes the wrong data such as symbols as the enterprise name only consists of characters and alphabets. 3. The primary scenario continues from step 1.
Pre-Conditions	1. Browsed enterprises must be registered.

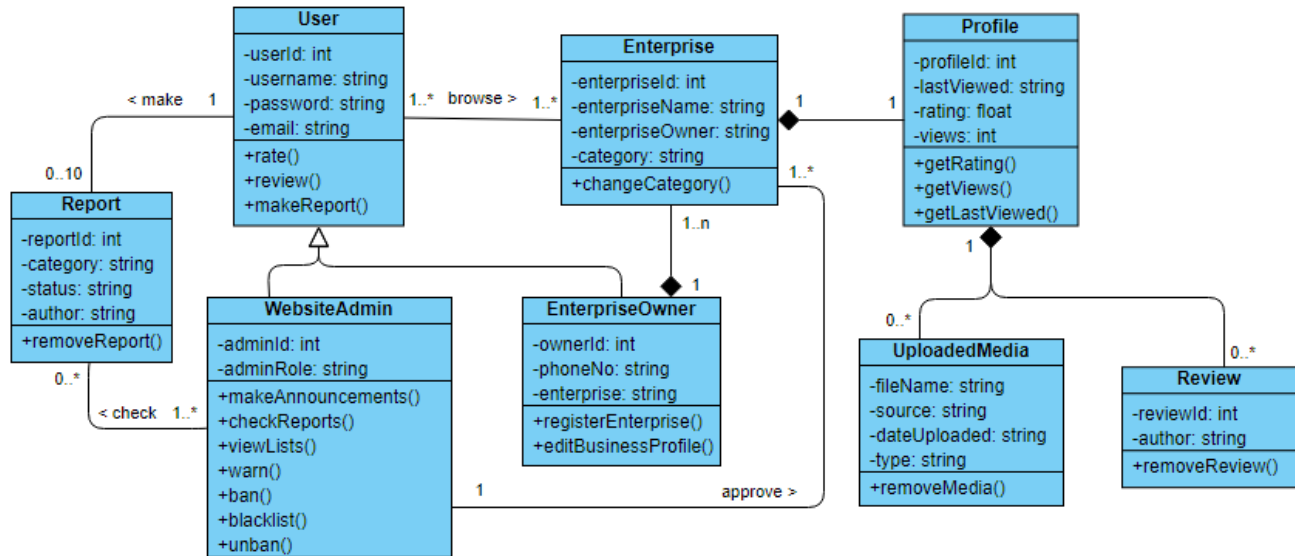|	
	2. User must have Login ID and password.
Post-Conditions	1. The system displays the enterprise name browsed and the user will be directed to the page once they click the name. 2. The system displays results in terms of name list of the browsed enterprises.
Assumptions	1. System is functioning. 2. Pointer is functioning.

LIEW WAI TONG

Use Case	View blacklist
Summary	This use case is for view the blacklists or unban the blacklists user.
Actor	Website Admin
Trigger	Website admin wants to check the details of blacklists user or unban them.
Primary scenario	1) Website admin enter the name of the specific blacklist user. 2) Website admin to check the details of the blacklist user.[Alternative scenario :unban the user] 3) The use case terminates.
Alternative scenario	Unban blacklists users 1) follow step 1 of primary scenario. 2) Website admin unban the user that might be accidentally banned by other admins. 3) System updates the blacklists. 4) The use case terminates.
Exceptional scenario	Website crash 1) Website cannot be open. 2) Website admin or IT team members start to repair the website immediately. 3) Continue from step 1 of Primary scenario.
Pre-conditions	1) Website admins must have login with their own specific ID .
Post-conditions	1) The innocent users must be unbanned. 2) Blacklists database is updated.
Assumption	1) Website is functioning. 2) Any one of admins is on work.

KHOO SOON FATT

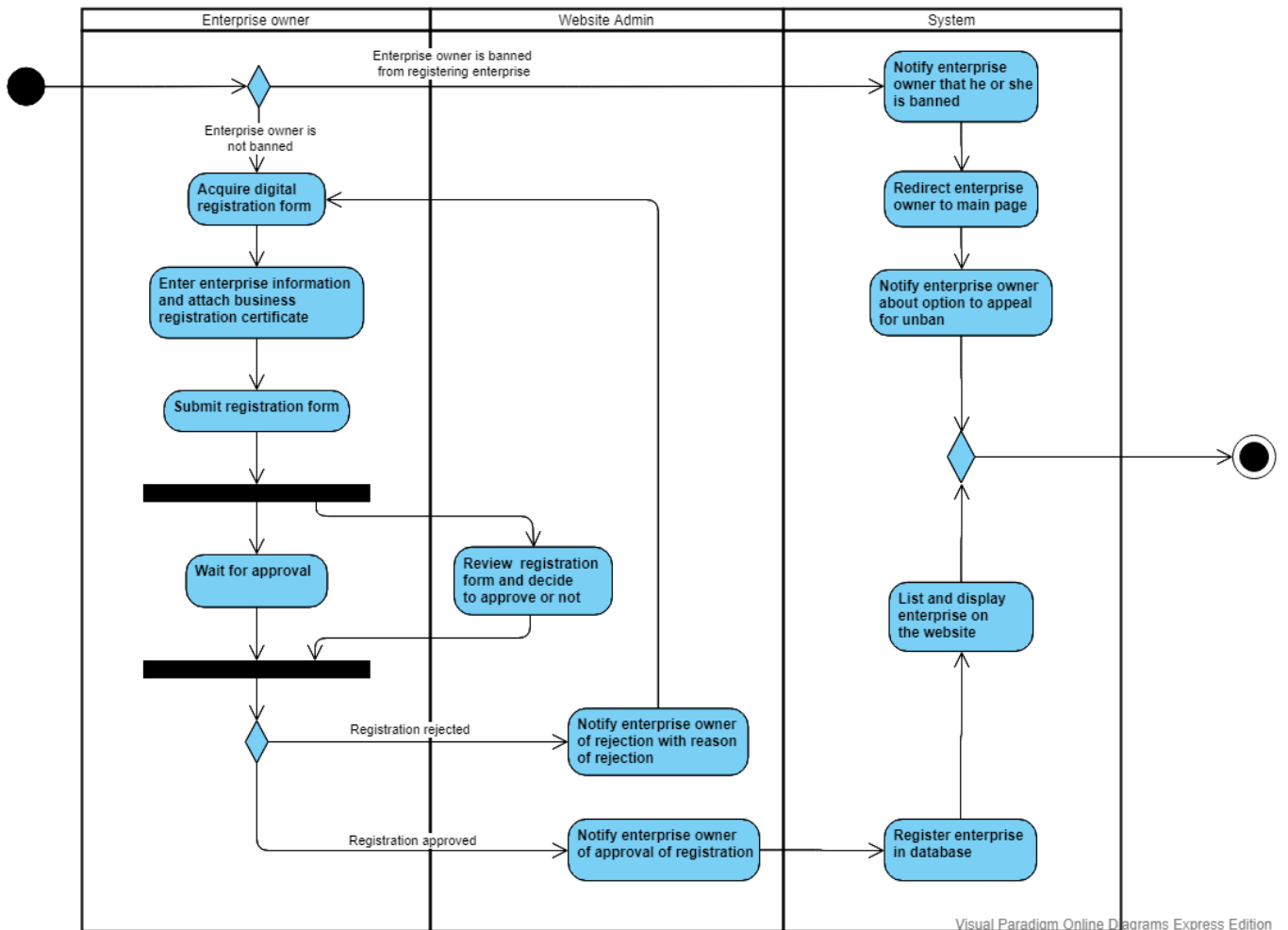| Use Case	View business profile
Summary	This use case deal with viewing the purpose or function of the enterprise owner profile
Actor	Website user
Trigger	Website user wants to view the business profile of the enterprise owner
Primary Scenario	1. Website user acquire the profile of a business owner. 2. Website user view the content of the profile owner. 3. Website user contact the business owner. 4. Website user wants to purchase a product from the owner. **[Alternative: user wants to enquire information about the product]** 5. Enterprise owner reply and accepted the user's demand **[Exceptional: does not have the stock of the product]** 6. Enterprise owner notify the user of the delivery time upon arrival. 7. Website user wait for the supply of demand. 8. Website user receive the supply.
Alternative Scenario	**user wants to enquire information about the product** 4. User enquire the information of the product. 5. Business owner reply the user with the knowledge of the product. 6. User ended the conversation with the business owner.
Exceptional Scenario	**Does not have the stock of the product** 5. Enterprise owner check for availability of the product. 6. Enterprise owner notify the user. 7. User cannot perform the purchase. 8. User ended the conversation with the business owner.
Pre-Conditions	3. Enterprise owner profile must be already registered in the database. 4. Enterprise owner must be online.
Post-Conditions	3. System display the purchase information of the product. 4. System display the product time of arrival.
Assumptions	3. System is functioning normally. 4. Profile of the owner is in the database.

Question 3

Class Diagram

User
-userId: int
-username: string
-password: string
-email: string
+rate()
+review()
+makeReport()

Enterprise
-enterpriseId: int
-enterpriseName: string
-enterpriseOwner: string
-category: string
+changeCategory()

Profile
-profileId: int
-lastViewed: string
-rating: float
-views: int
+getRating()
+getViews()
+getLastViewed()

Report
-reportId: int
-category: string
-status: string
-author: string
+removeReport()

WebsiteAdmin
-adminId: int
-adminRole: string
+makeAnnouncements()
+checkReports()
+viewLists()
+warn()
+ban()
+blacklist()
+unban()

EnterpriseOwner
-ownerId: int
-phoneNo: string
-enterprise: string
+registerEnterprise()
+editBusinessProfile()

UploadedMedia
-fileName: string
-source: string
-dateUploaded: string
-type: string
+removeMedia()

Review
-reviewId: int
-author: string
+removeReview()

< make   1
0..10
1..*   browse >   1..*
1   1
1..*
1..n
1
0..*
1
1
1   approve >
0..*
0..*
< check   1..*
0..*

Question 4

Activity Diagrams

1. Register Enterprise

2. Edit business profile
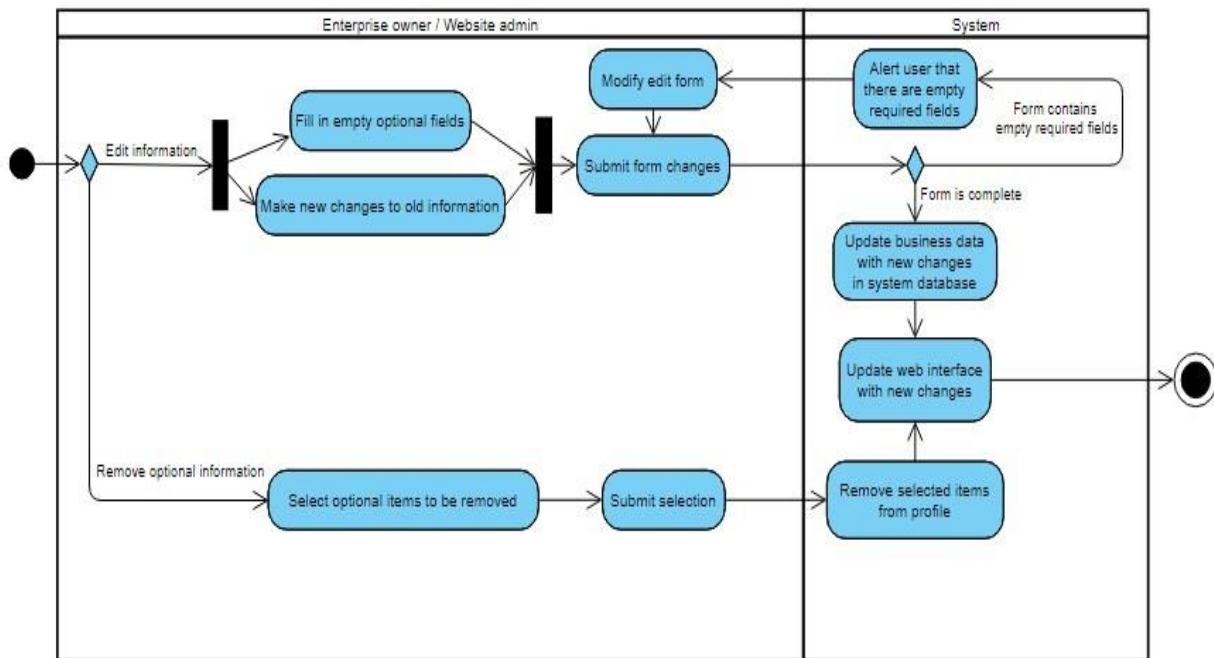
3. Search specific enterprise
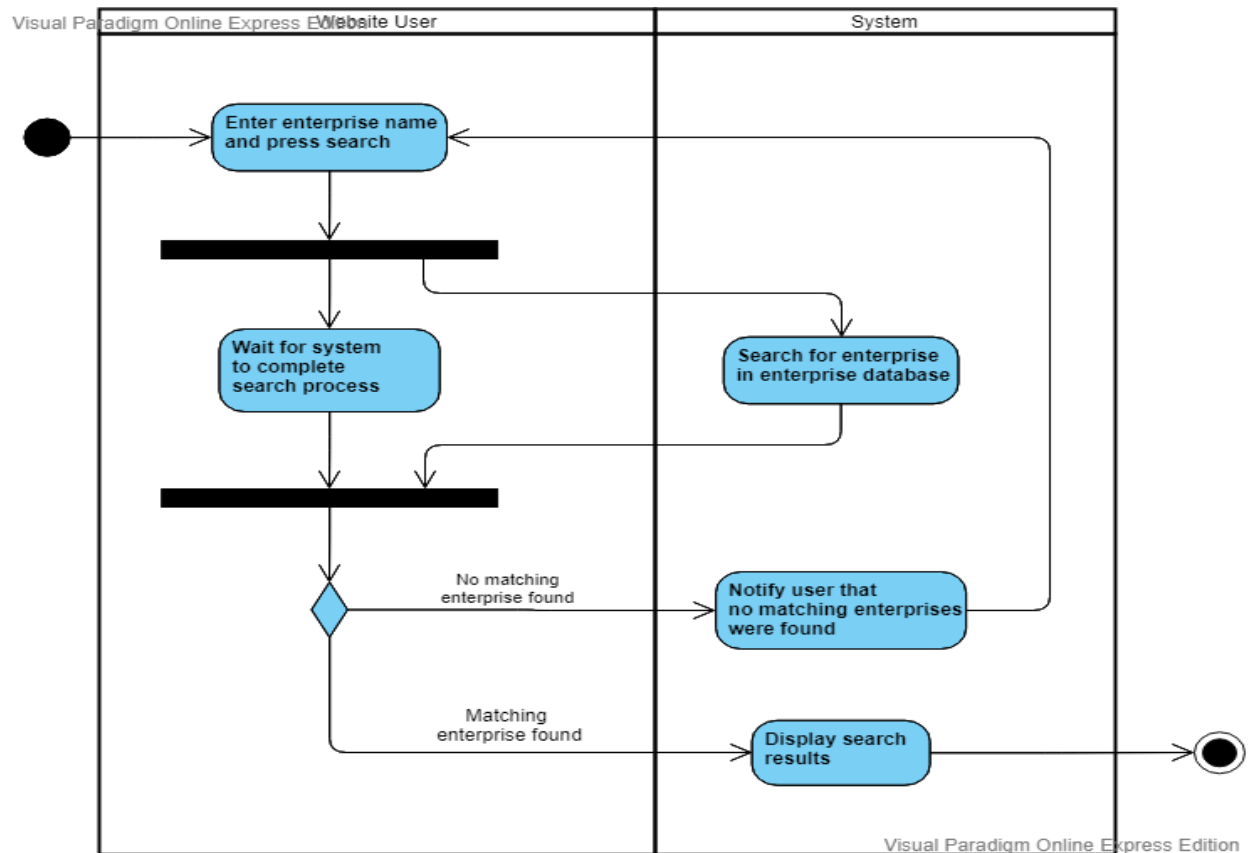
Bibliography List

Bittner, K. and Spence, I. (2003) *Use Case Modeling*. Massachusetts: Addison-Wesley Professional.

Companies Commission of Malaysia (2018) *Guidelines for Registration of New Businesses*. Available from https://www.ssm.com.my/Documents/guidelines_for_registration_of_new_business_05062018_0.pdf [accessed 23 November 2020].

Dennis, A., Wixom, B. and Tegarden, D. (2015) *Systems Analysis and Design: An Object-Oriented Approach with UML*, 5th edition. Wiley.

Lucidchart (2017) *UML Class Diagram Tutorial* [video]. Available from https://www.youtube.com/watch?v=UI6lqHOVHic [accessed 23 November 2020].

Visual Paradigm (2020) *UML Class Diagram Tutorial*. Available from https://www.visual-paradigm.com/guide/uml-unified-modeling-language/uml-class-diagram-tutorial/ [accessed 30 November 2020].

Windle, R.D. and Abreo, R.L. (2003) *Software Requirements Using the Unified Process: A Practical Approach*. New Jersey: Prentice Hall Professional.

Marking scheme

Question 1:- Use case diagram. (20 marks)

Marks	Criteria
16-20	Outstanding use case diagram. Appropriate actors are identified. The actors have been allocated appropriate responsibilities. Use cases are sensibly named. The scope of the system appears reasonable. Correct UML syntax is employed including sensible use of stereotypes. The diagram is well presented. Use cases are of the correct granularity.
11-15	Good use case diagram. The diagram is good but has errors or oversights. For example there may be errors of syntax, or unusual naming of elements, or additions or omissions in scope may have occurred, or issues of use case granularity, or presentation problems. Alternatively there may be a number of minor issues which prevent the diagram from being excellent.
6-10	Satisfactory use case diagram. A reasonable attempt has been made however the number and significance of the errors prevent the diagram from being good. The diagram is however recognizable as a use case diagram.
0-5	Unsatisfactory use case diagram. Either the diagram is not recognisable as a use case diagram or the content is seriously flawed, or both.

Question 2:-Use Case Description (20 marks)

Marks	Criteria
16-20	Outstanding use case description. The standard template has been comprehensively followed. The use case appears consistent with the use case diagram in terms of name and content. Sensible scenarios have been identified and linked together appropriately. Clearly specifies required use case.
11-15	Good use case description. The description is good but has errors or oversights. For example there may be errors of syntax / use of the template, or additions or omissions in scope may have occurred or elements are unclear. Alternatively there may be a number of minor issues which prevent the diagram from being excellent.
6-10	Satisfactory use case description. A reasonable attempt has been made however the number and significance of the errors prevent the description from being good. The description may be significantly incomplete in terms of the scenarios identified or the content of the scenarios or clarity. Equally the description may refer to the functionality of what is likely to be more than one use case. The description is however recognizable as a use case description.
0-5	Unsatisfactory use case description. The use case description is not recognizable as a use case description or the content is seriously flawed, or there are major omissions or additions, it is unclear or a combination of these.

Question 3:- Class Diagram (20 marks)

Marks	Criteria
16-20	Outstanding class diagram. The correct scope is included. Classes are sensibly named. Appropriate attributes and operations are allocated to classes. An appropriate and complete set of attributes has been identified. An appropriate and complete set of operations has been identified. Plausible relationships including types, names and multiplicity. Correct following of UML standards, including the sensible identification of stereotypes. Any errors, omissions or additions are very minor.
11-15	Good class diagram in the areas of the scope, classes, attributes, operations, relationships, and syntax. It is possible that the diagram is outstanding or excellent in some areas and satisfactory in others but on balance is good. Satisfactory or above in all areas. Likely to contain a small number of errors, omissions or additions which prevent the diagram from being excellent.

6-10	Satisfactory class diagram in the areas of the scope, classes, attributes, operations, relationships, and syntax. It is possible that the diagram is good or above in some areas and satisfactory in others. Weak in no more than two areas. Likely to contain a number of errors, omissions or additions which prevent the diagram from being good.
0-5	Unsatisfactory class diagram in the areas of the scope, classes, attributes, operations, relationships, and syntax. It is possible that the diagram is weak or above in some areas and unsatisfactory in others. Unsatisfactory in two or more areas. Likely to contain errors, omissions, additions, or misunderstandings which prevent the diagram from being weak. May not be recognisable as a class diagram, might have majors errors in content or a combination of the two.

Question 4:- Activity Diagram [10 marks each] (30 marks)

Marks	Criteria
8-10	Outstanding activity diagram. Standard UML syntax has been followed. The diagram appears consistent with the use case diagram in terms of name and content. Sensible alternative flows have been identified and linked together appropriately. Appropriate partitions have been used. Flow is appropriately identified and appears complete. Very clearly specifies required use case.
6-7	Good activity diagram. Standard UML syntax has been followed but there might be minor errors. The diagram appears consistent with the use case diagram in terms of name and content. Sensible alternative flows have been identified and are usually linked together appropriately. Flow is appropriately identified and is fairly complete. There are errors, oversights, additions of scope or aspects are unclear. Partitions are reasonable in the main however there might be slight errors, additional partitions or some aspects of functionality may be occurring in unexpected places. Fairly clearly specifies required use case. Alternatively there may be a number of minor issues which prevent the diagram from being excellent.
3-5	Poor to satisfactory activity diagram. The diagram is at least recognizable as UML. The diagram approximated the expected functionality from the use case diagram in terms of name and content. An attempt was made at alternative flows with these linked together in some manner. There can be errors, oversights, additions of scope or aspects could be unclear. Appropriate partitions may not have been included. Specifies the required use case to a point when this would be at least usable by someone other than its author. Recognizable as an activity diagram.
0-2	Unsatisfactory activity diagram. The content is seriously flawed, or there are major omissions or additions, it is unclear or a combination of these. May not be recognizable as an activity diagram. Could be significantly incomplete. The syntax employed might be unrecognizable as UML.

Bibliography (total 10 marks)- At least 5

Bibliography(Harvard)	Mark awarded	Marks available
Include bibliography but poor referencing format		**0-5**
Sufficient bibliography with correct referencing format		**6-10**