Assessment 2: Application of Information Systems to a Business Brief

Start Assignment

Due Dec 1 by 23:59 **Points** 100 **Submitting** a file upload **Attempts** 0 **Allowed Attempts** 2

IT5015D: Information Systems

Assessment 2: Application of Information Systems to Business Brief

This assessment contributes to 60**%** of the final course grade.

Assessment Overview

This assignment is based on the **New Horizons Cinemas** case study which you will find in a separate document in Canvas, under Assessment 1.

The assessment has three parts:

Part 1. Design a Database

- Design a data model to solve a given problem.
- Design the queries needed to meet the given requirements.
- Prepare the data content for the database.

Part 2. Database implementation

- Create the resulting database and tables; identifying primary, foreign keys and other constraints; and insert data.
- Create the test queries to meet user requirements.

Part 3. Contextual Summary

- Write a 250-word summary of the information technology legislation and
- Write a 250-word summary the ethical considerations you, as an IT professional, must consider. This includes the organisational context and the impact of IT in the context of the New Horizons Cinema case study.

Learning Outcomes

This assessment contributes to the following learning outcomes:

LO2: Apply information systems principles and practices to support organization.

LO3: Demonstrate effective communication skills in technical and non-technical situations, as an emerging IT professional.

Specific Assessment Conditions

Duration

It is recommended that you spend between 3 and 4 hours on this assignment.

Materials

- You can access all course materials and any other resources you wish to use as you work on this assessment.
- You can ask a Lecturer to clarify the instructions, and/or for advice, but they cannot do/solve the required tasks – you must carry out all the tasks yourselves!

Instructions

Part 1: Design a database

Task 1: Develop the Data Model – Logical Design

A. Use the conceptual design from your assignment one to create a Final Entity Relationship Diagram ERD.
B. List and describe all the entities that will be used to create the ERD.
C. List the attributes for each entity.
D. Identify the data types and constraints on the attributes.
E. Identify candidate keys for each entity.
F. Choose a primary key from the candidate key(s).
G. Draw each relationship with appropriate cardinality and foreign keys.
H. For each relationship, define which referential constraints apply. List the relationships and their constraints. In each case explain your choice.
I. Demonstrate that all your tables are in 3rd normal form by explaining how each of the normalisation criteria are met.

Task 2: Design Data Queries

The purpose of this database is to provide data for a web application. From the description of the required functionality from the **New Horizon Cinemas** case study, **extract a list of queries** you think will be needed by this application.

For each required **function**, prepare a list of queries (just the names of the queries) that will be needed to fulfil the function. One example is shown below.

Table 1: Function Query Examples

Function	Queries

Search for Cinema	searchCinemaByCity searchTheatreByCityAndCapacity searchTheatreByCityAndSoundSystem
Show Cinema Information	
Search Movie Schedule	
Show Movie Screening	
Monitor Movie Screenings	

- Note any question you have and any point you need to clarify with the customer/tutor.
- Also note any assumption you had to make.
- Review your database design and adjust it to make sure that it will enable these queries.
- It is normal to make changes after looking at more detailed requirements.
- **Explain one of the changes you had to make.**

Task 3: Prepare Data Content

A. **Prepare data for each of the tables you have identified**. Each table should have enough records for you to be able to test your queries. Aim for between two and ten records for most tables.
B. **In an excel spreadsheet or in a document,** list the actual data you will need in your tables.
C. Think about how you would test some of the queries you have listed above.

For example, here is the start of the information you might need for a movie table (this might not quite match your design, but it gives you an idea).

1. Have a table like this for each of your database tables.
1. Remember to include values for any key that you need.
1. Consider the order in which you create your tables to always ensure referential integrity.

Table 2: Movie Table Example

Movie (table name)				
Title	**Director**	**Year**	**Duration**	**IMDB link**
Fight Club	David Fincher	1999	2h 19 min	http://www.imdb.com/title/tt0137523 (http://www.imdb.com/title/tt0137523)

The Lord of the Rings: The Fellowship of the Ring	Peter Jackson	2001	2h 58 min	http://www.imdb.com/title/tt0120737 (http://www.imdb.com/title/tt0120737)
The Lord of the Rings: The Return of the King	Peter Jackson	2003	3h 21 min	http://www.imdb.com/title/tt0167260 (http://www.imdb.com/title/tt0167260)

Part 1: Self-checkpoint

- Before proceeding to Part 2, use the following checklist to ensure that it is adequate as basis for the implementation of Part tasks.
- The reason for this is because, without a sound design, you may encounter problems in Part 2: Implementation.
- If you are unsure about certain points, you may consult your tutor. You may need to refine or correct your design before you proceed to Part 2.
- Please ensure you have completed all the tasks listed in the checklist below.

Task	**Adequate for Part 2**

PART 1: DESIGN A DATABASE	
Task 1: Develop Data Model	
Entity-Relationship diagram includes: - Entities - Attributes and Data Types - Primary Keys - Relationships and Foreign Keys	
Naming convention used	
Relationship referential constraints defined and explained	
Normalisation criteria demonstrated 1NF, to 3NF	
Task 2: Design Data Queries	
Queries listed for each of the four functions	
Questions and assumptions listed	
Revised ERD included	

ERD changes explained	
Task 3: Prepare Data Content	
Sample data prepared for each table in the database	

Part 2: Database implementation

Part 2: Database Implementation builds on Part 1: Task 1 Develop the Data Model – Logical Design, where you created a database and specify tables, attributes, and relationships by using any software tools (e.g., MS Access, SQL server).

A. Enter the test data from Part 1: Task 3 to the tables (at least 5 records in each table).
B. Create and run **ten** queries you have identified previously in Part 1: Task 2 (these include the sample queries provided), **at least two per function**.
C. For each query you are implementing, you are must:
D. Describe in words what the query is expected to do
E. What variable inputs it takes.
F. Define some test cases with a range of inputs.
G. For each set of inputs note the expected results of the query.

Part 3. Contextualised summary

- Write a 250-word summary of the information technology legislation and
- Write a 250-word summary the ethical considerations you, as an IT professional, must consider. This includes the organisational context and the impact of IT in the context of the New Horizons Cinema case study.

Submission checklist: Parts 1, 2 and 3

Task	Done
PART 1: DESIGN A DATABASE	
Data model documented, including ERD and required explanations	
Planned queries documented including questions and revised ERD.	
Sample data provided	
Evidence and documentation provided in a file named **IT5015D_Assignment2_Part1_<YourStudentID>**	
PART 2: DATABASE IMPLEMENTATION	
Database created	
Tables created and relationship identified	
At least 5 records provided for each table	
At least two queries created for each of the five functions.	
For each query:	

Test plan with input and expected results provided Tests executed and test results notes (incl. bugs found) Bugs corrected and one bug fix documented Final test run executed without error.	
Evidence and documentation provided in a folder named **IT5015D_Assignment 2 _Part2_<YourStudentID>.zip**	
Part 3: Contextualised Summary	
PowerPoint slides provided in a file named **IT5015D_Assignment 2 _Part3_<YourStudentID>**	

Submission instructions

- Check that you have collected the following evidence:
- Read and agree to the declaration below.
- Upload your documents and the assessment cover sheet to "*YourStudentID*_**Assess_1_P1**".

Declaration

By submitting your work, you are indicating that you agree to the following declaration:

"The work presented in this assessment is my original creation and has not already been submitted, either in whole or in part, for any other course at this or any other tertiary institution."

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Criteria	Ratings				Pts
Part 1: Design a data base - Task 1: Develop the Data Model ERD and ERD normalised to NF	**5 to >4.0 pts** **ERD shows correct structure (correct entities, attributes and their data types, key fields) and links between tables. Normalisation criteria demonstrated 1NF, to 3NF.**	**4 to >3.0 pts** **ERD shows few incorrect or incomplete structure and links between tables. Normalisation criteria demonstrated 1NF, to 3NF.**	**3 to >2.0 pts** **ERD shows some incorrect or incomplete structure and links between tables. Normalisation criteria demonstrated 1NF, to 3NF.**	**2 to >0 pts** **ERD Not included. ERD is not normalised to 3NF.**	5 pts
Naming conventions	**5 to >4.0 pts** **Clear naming conventions.**	**4 to >3.0 pts** **Adequate naming conventions.**	**3 to >2.0 pts** **Poor naming conventions.**	**2 to >0 pts** **No naming conventions.**	5 pts
Relationship	**5 to >4.0 pts** **Relationship referential constraints defined and explained in detail.**	**4 to >3.0 pts** **Relationship referential constraints clearly defined and explained.**	**3 to >2.0 pts** **Relationship referential constraints adequately defined and explained.**	**2 to >0 pts** **Relationship referential constraints are not properly defined and explained.**	5 pts
Task 2: Design Data Queries Queries, questions and assumptions	**5 to >4.0 pts** **Queries, questions and assumptions listed for each of the four functions.**	**4 to >3.0 pts** **Queries, questions and assumptions listed for three functions.**	**3 to >2.0 pts** **Queries, questions and assumptions listed for two functions.**	**2 to >0 pts** **Queries and/or questions, and/or assumptions are missing.**	5 pts
Revised ERD	**5 to >4.0 pts** **Revised ERD included & ERD changes explained in detail.**	**4 to >3.0 pts** **Revised ERD included & ERD changes clearly explained.**	**3 to >2.0 pts** **Revised ERD included & ERD changes adequately explained.**	**2 to >0 pts** **Revised ERD is not included.**	5 pts
Task 3: Prepare data content Sample	**5 to >4.0 pts** **Sample data prepared for each table in the database.**	**4 to >3.0 pts** **Sample data prepared for most tables in the database.**	**3 to >2.0 pts** **Sample data prepared for few tables in the database.**	**2 to >0 pts** **No sample provided.**	5 pts

Criteria	Ratings				Pts
Part 2: Database implementation Data base	**5 pts** **Successful creation of a database.**	**5 to >3.0 pts** **Successful creation of a well organised database.**	**3 to >2.0 pts** **Adequate creation of a data base.**	**2 to >0 pts** **Database not created.**	5 pts
Attributes	**10 to >8.0 pts** **Successful creation of the specify tables with attributes, appropriate data type.**	**8 to >7.0 pts** **Data type selected is mostly correct or complete.**	**7 to >5.0 pts** **Data type selected is incorrect or incomplete.**	**5 to >0 pts** **Attributes are missing.**	10 pts
Primary and foreign keys	**10 to >8.0 pts** **Successful identification of primary keys and foreign keys.**	**8 to >7.0 pts** **Mostly correct identification of primary keys and foreign keys.**	**7 to >5.0 pts** **Incorrect identification of primary keys and foreign keys.**	**5 to >0 pts** **Data type selected is incorrect or incomplete.**	10 pts
Queries and records	**10 to >8.0 pts** **At least two queries created for each of the five functions, at least ten in total.**	**8 to >7.0 pts** **At least 5 records provided for each table.**	**7 to >5.0 pts** **Partially created queries.**	**5 to >0 pts** **No records provided for each table.**	10 pts
Inputs, results and bugs	**10 to >8.0 pts** **Test plan shows detailed inputs and expected results. Debugging and corrections explained in detail.**	**8 to >7.0 pts** **Test plan shows clear inputs and expected results. Debugging and corrections clearly explained.**	**7 to >5.0 pts** **Test plan shows some inputs and expected results. Debugging and corrections adequately explained.**	**5 to >0 pts** **Inputs and expected results not provided. Debugging and no corrections explained.**	10 pts
Runs	**5 to >3.0 pts** **Runs queries without error.**		**3 to >0 pts** **Runs queries with some errors.**		5 pts
Part 3: Contextualised	**10 to >8.0 pts**	**8 to >7.0 pts**	**7 to >5.0 pts**	**5 to >0 pts**	10 pts

Criteria	Ratings				Pts
summary Information technology legislation	**Detailed summary of Information technology legislation is the context of the New Horizons Cinemas case study.**	**Clear summary of Information technology legislation is the context of the New Horizons Cinemas case study.**	**Adequate summary of Information technology legislation is the context of the New Horizons Cinemas case study.**	**Little or no attempt to summarise information technology legislation in the context of the New Horizons Cinemas case study.**	
Ethical considerations as an IT professional	**10 to >8.0 pts** **Detailed summary of ethical considerations, as an IT professional, in the context of the New Horizons Cinemas case study.**	**8 to >7.0 pts** **Clear summary of ethical considerations, as an IT professional, in the context of the New Horizons Cinemas case study.**	**7 to >5.0 pts** **Adequate summary of ethical considerations, as an IT professional, in the context of the New Horizons Cinemas case study.**	**5 to >0 pts** **Little or no attempt to summarise ethical considerations, as an IT professional, in the context of the New Horizons Cinemas case study.**	10 pts
					Total Points: 100