第 50 屆全國技能競賽暨第 46 屆
國際技能競賽國手第一階段選拔賽

CHINESE TAIPEI

資訊技術（軟體設計）職類
競賽試題及評分彙總表

競賽及評分項目

□ 商業資料建置 **EngTyping**	□ 資料處理分析與簡報設計 **DA&PPT Design**	☑ 系統分析與資料庫設計 **SA&DB Design**
□ 商用軟體設計一 **Software Design 1**	□ 商用軟體設計二 **Software Design 2**	□ 行動 App 設計 **App Design**

選 手 編 號：＿＿＿＿＿＿＿＿＿

抽籤崗位號碼：＿＿＿＿＿＿＿＿＿

選 手 姓 名：＿＿＿＿＿＿＿＿＿

總　　　　分：＿＿＿＿＿＿＿＿＿

評 分 老 師：＿＿＿＿＿＿＿＿＿

Session 3 System Analysis and Database Design for "Shanghai Disneyland Resort", and two Hotels "Shanghai Disney Hotel" and "Toy Story Hotel"

Scenario Description for Dynamic Information Board

Disneyland facilities include eight themed areas, namely: Mickey Avenue, Fantasyland, Gardens of Imagination, Tomorrowland, Treasure Cove, Adventure Isle, Disney Pixar Toy Story Park and Animal Party City.

Each of the amusement facilities has many features, especially marked as suitable for "**Family Fun Facilities**" and "**Recommended Drama**" to provide visitors with choices.

* Family Fun Facilities
Tomorrowland: Jet Packs, Buzz Lightyear Planet Rescue
Adventure Island: Roaring Rapids, Camp Discovery
Dream world: Alice in Wonderland Maze, Hunny Pot Spin, Bai Ling Storytime
Whimsical garden: Fantasia Carousel, Dumbo the Flying Elephant
* Drama Recommendation
Treasure Bay: Eye of the Storm: Captain Jack's Stunt Spectacular at El Teatro Fandango
Dream World: Frozen: A Sing-Along Celebration at Evergreen Playhouse
Adventure Island: Tarzan: Call of the Jungle at Storyhouse Stage

Please design a **Dynamic Information Board** in the park. This Board will be set up everywhere in the park so that visitors can know real-time information at any time. The content is dynamic and infinitely rotated. The information content is as follows:

【**Current Events News**】

Contains COVID statistics, commercial advertisements, etc.

【**Weather Forecast**】

Including current time, climate of today and tomorrow, rain probability, low-high temperature and humidity.

【**Number of visitors**】

Including the cumulative number of visitors in one day, the number of immediate visitors in the park, and the ranking of the number of theme parks.

【**Introduction to Theme Parks**】

Including the introduction of eight theme parks and the theme party of this month.

【**Introduction to Attractions**】

Including introduction of various amusement facilities, attributes and characteristics, and current queue time.

【**Drama schedule**】

The current drama schedule and the next drama schedule.

【**Amusement Facilities Business Schedule**】

Today's business schedule.

【**Amusement Facilities Maintenance Schedule**】

Today's maintenance schedule.

Scenario Description for Hotel Reservation System

In addition, because the employees of the two hotels in the park have system requirements, please expand the reservation system, order the same-day accommodation and real-name check-in on site.

At least one representative must be provided for each room (and the representative must not be the same for each room), and customer information must be registered, Measure body temperature and take pictures.

Visitors/Customers do not necessarily need buy **Shanghai Disneyland Resort** tickets before hotel reservation, but those who have resort tickets are 20% off the room price.

The order must include the choice of hotel (Shanghai Disney Hotel, Toy Story Hotel), stay period, number of adults, number of children, breakfast requirements, children's playroom, pick-up service, luggage storage, etc.

Shanghai Disney Hotel	Toy Story Hotel
● **Deluxe Level**	● **Standard**
1. Garden View	1. Garden View
2. Lake View	2. Courtyard View
3. Park View	3. Park View
● **Club Level**	
1. Club	
2. Junior Suites	
(1) Magic Kingdom Suite	
3. Signature Suites	
(2) Sorcerer Suite	
(3) Fantasia Suite	

Please start to system analysis by user's requirement, and design two SQL Database for future information systems developing. They must meet the requirement descriptions, and draw various analysis documents, database normalization and simulation of various data records to verify whether your design are correct.

System Analysis and Database Design for "Dynamic Display Board".

This Dynamic Display Board System is for **Visitor/Guest, Member**, **and Resort Manager** to use.

Please restore a database "***DisneySHData.bak***" and extend its "**Table**", "**Fields**", test data, and name as ***DisneySHAnsNM*** (***NM:*** Your Workstation Number).

【**Current Events News**】
  1. Display the COVID statistics information of each continent. For reference, please refer to file "***SA&DB Design\Data\Epidemic situation.docx***".
  2. Commercial advertisements, differentiate between odd and even days and take turns to broadcast advertisements.

【**Weather forecast**】
  1. Include the current time, the climate of today and tomorrow, the probability of rain, low-high temperature, humidity %, UV index, wind speed, etc.
  2. Special reminders, such as: sunlight and ultraviolet rays, please wear more clothes to avoid the cold, heavy rain, etc.

【**Number of visitors**】
  1. Including the cumulative number of visitors in one day and the number of visitors in the park immediately.
  2. The current population rankings of the eight theme parks.

【**Introduction to the theme park**】
  1. Include introduction to eight theme parks.
  2. Introduction to the theme party of the park this month.

【**Introduction to Attractions**】
  1. Including the introduction of each amusement facility and its attributes.
  2. The time required to queue up.

【**Drama schedule**】
  1. Current drama schedule.
  2. The next drama schedule.

【**Amusement facilities business schedule**】
  1. Today's business hours.
  2. Display temporary conditions.

【**Schedule of maintenance of amusement facilities**】
  1. Maintain the equipment today.
  2. Maintenance progress of each facility%

System Analysis and Database Design for "Hotel Reservation System".

This Hotel Reservation System is for **Hotel FrondDesk** and **Hotel Manager** to use. Please create a database name as *HotelBookingAnsNM* (*NM:* Your Workstation Number).

【**Make Reservation**】
1. Including the choice of hotel room (Shanghai Disney Hotel, Toy Story Hotel), stay period, room type, consecutive rooms, avoid side rooms, high-floor rooms... etc.
2. Room Status: Booked but not checked in, available for reservation, checked in, cleaned, reserved.
3. The interface contains the room number, the number of occupants, the status, the total number of rooms in each state, and the current total number of occupants.

【**Check In**】
1. Enter the stay period, the number of adults, the number of children, breakfast requirements, children's playroom, pick-up service, luggage storage, customer special requirements notes and other options.
2. On-site reservations for same-day accommodation and real-name accommodation are all used. At least one representative must be provided for each room (and the representative must not be the same for each room), customer information, temperature measurement and photography are required.

【**Check Out**】
1. Those who order accommodation and stay in may not need Disney admission tickets, but those who have tickets (ticket number required) will have a 20% discount on the room price (per room unit).
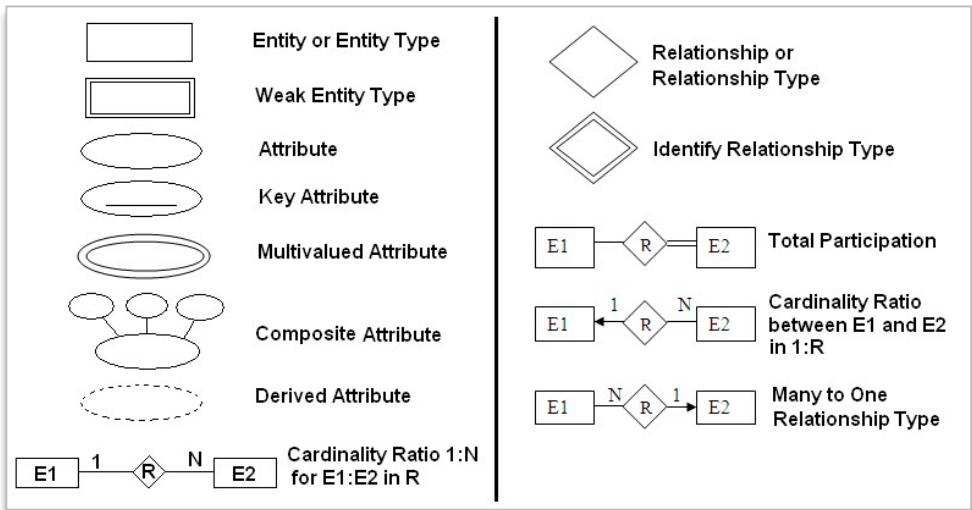2. Check out and pricing
3. Invoice, cash flow processing, etc.

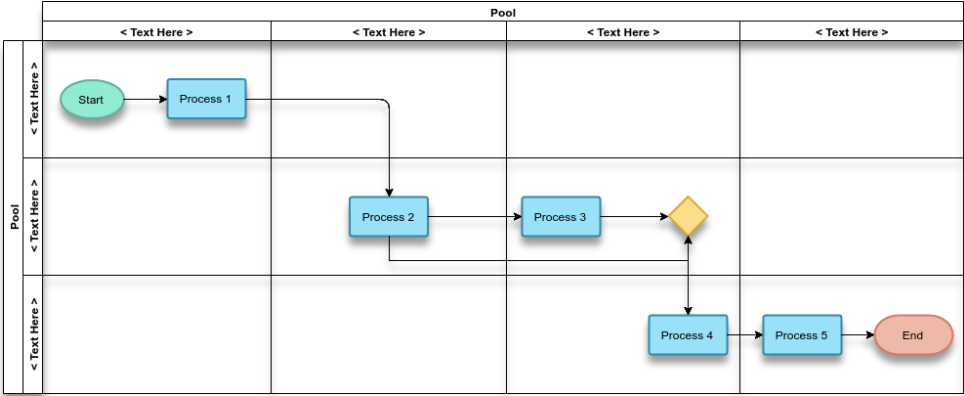【**Hotel Management**】**(Only for Hotel Mamager)**
1. The Hotel Manager can check all room information.
2. Reports for statistical day, week, month, quarter, year, specified period, etc.
3. Management System

Session 3 Marking Sheet

	Software Design Stage1 Task Descriptions	Max Score	Actual Score
(1)	(a) Please restore the database with the name "***DisneySHData.bak***". If the database cannot be restored, the expert assistance will be deducted for 5 points.	0	
(2)	(a) Please add the SQL system administrator account **DisneySH_Admin**, the password is ***SH@2020***, and add ***db_owner*** permission.	2	
(3)	(a) Please change the DisneySHData.mdf and DisneySHData_log.ldf database file names to "***DisneySHAnsNM.mdf***" and "***DisneySHAnsNMlog.ldf***".(***NM:*** Your Workstation Number). ※Please try to backup and restore successfully after modifying the file name.	2	
(4)	Please design a normalization of data table in the SQL environment at least to 3NF. (a) For the table you added, please named the table name "***New_***" at the beginning.	2	
	(b) Please change the design database to a real-name system, and each ticket represents a tourist, Please named table is ***RealNameForTicket***.	2	
	(c) Design Current Events News, please named table are ***COVID*** and ***Advertisement***.	3	
	(d) Design Weather forecast, please named table as ***WeatherData***.	2	
	(e) Design Number of visitors, please named table as ***QueueOfAttractions***.	2	
	(f) Design Introduction to the theme park, please named table as ***ThemePark*** and ***ThemePartyOfMonth***.	2	

Software Design Stage1 Task Descriptions	Max Score	Actual Score
(g) Design Introduction to Attractions, please named table as *Attractions*.	2	
(h) Design Drama schedule, please named table as *DramaSchedule*.	2	
(i) Design business and maintenance schedule, please named table as *BusinessSchedule* and *MaintenanceSchedule*.	2	
Please design a normalization of data table in the SQL environment at least to 3NF. (a) Basic information of hotel and room	4	
(b) Check In processing	3	
(c) Cash flow, invoices, statistics, etc.	3	
(5)	Please use the Case Diagram for all systems, the file saved as a VSDX file, and the file named "*5-UseCaseDiagram-Disney.VSDX*" and "*5-UseCaseDiagram-Hotel.VSDX*" (a) Case representation of the case (Actor) defined completely and correctly. (obvious shortcomings, each deduction 1 point)	4	
	(b) Case diagram of the role (Actor), case (Use Case) design completely. (obvious shortcomings, each deduction 0.5 points)	2	
	(c) The association between the Actor and the Case (Case) and the flow design are completely. (obvious shortcomings, each deduction 0.5 points)	2	
	(d) Case diagrams describe are using Include and Extend. (obvious shortcomings, each deduction 0.5 points)	2	
	(e) Case diagrams of the case (Actor), case (Use Case), the system boundary (System Boundary) relationship between the designed are completely. (obvious shortcomings, each deduction 0.5 points)	2	

Software Design Stage1 Task Descriptions	Max Score	Actual Score
(6) Draw the ER Model for the **Hotel Reservation System**, the entity contact mode diagram (ERD), the file saved as a VSDX file, and the file named "***6-ERD-Hotel.VSDX***". Reference to the following diagram to draw the ERD Model. (a) ER Model Entity (Entity) is completely and correctly. (obvious shortcomings, each deduction 1 point)	4	
(b) ER Model's attributes are completely. (obvious shortcomings, each deduction 0.5 point)	2	
(c) ER model keys (Key) are completely. (obvious shortcomings, each deduction 0.5 point)	3	
(d) Relationships of ER Model are completely. (obvious shortcomings, each deduction 0.5 point)	3	

Software Design Stage1 Task Descriptions	Max Score	Actual Score
(7) Please draw the Cross Function Flow Chart file of **Hotel Reservation System** and save it as a VSDX file with the file name "*7-CFFC-Hotel.VSDX*". You can refer to the example below for drawing. (a) Whether the design of each functional flow chart can identify the scope, theme and function name of the flow chart. (obvious shortcomings, each deduction 1 points)	3	
(b) Whether the design of each flow chart has a human role. (obvious shortcomings, each deduction 0.5 points)	2	
(c) Whether the design of each flow chart has a process arrow. (obvious shortcomings, each deduction 0.5 points)	2	
(d) Whether the design of each flow chart is marked with more than two different flowchart shapes. (obvious shortcomings, each deduction 0.5 points)	2	
(8) Create a database association diagram, save the file and export as two of PDF files, and the file name is "*8-DatabaseDiagram-Disney.PDF*" and "*8-DatabaseDiagram-Hotel.PDF*". (a) The association of the relationship of database diagram is set correctly.	4	
(b) Please set the display relationship labels, field names and attributes.	2	

	Software Design Stage1 Task Descriptions	Max Score	Actual Score
(9)	Please create a data sheet for your design and save the Word file. The file name is "*9-DataDictionary.DOCX* ". (a) Data Dictionary in Chinese and English.	5	
	(b) The meaning of each data sheet is used for explanation.	3	
(10)	(a) Import the "*Epidemic situation.docx*" file into the relevant data table.	3	
	(b) Add simulated commercial advertisement data with at least 5 records.	1	
	(c) Add Drama Schedule and at least 10 meaningful records.	1	
	(d) Add at least 100 meaningful data to simulate queuing records at each attractions.	3	
	(e) Add at least 500 meaningful records of hotel rooms.	3	
	(f) Add simulated check-in records, at least 10 meaningful records.	2	
(11)	(a) After the answer is completed, upload the result file and upload it as "*DisneySHAns NM.BAK*" and "*HotelBookingAns NM.BAK*". (*NM:* Your Workstation Number)	2	
	(b) Please generate and publish a script containing all data tables and user items. The file name must be a single file for each object. The save file names are "*11-DisneySHAns.sql*" and "*11-HotelBookingANS.sql*".	5	
	Total	**100**	