第 48 屆全國技能競賽暨
第 45 屆國際技能競賽國手選拔賽

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

☑系統分析與資料庫設計	☐商用軟體設計一	☐商用軟體設計二
☐商業資料處理與分析	☐文件與簡報設計	☐商業資料建置

選　手　編　號：_____

抽籤崗位號碼：_____

選　手　姓　名：_____

總　　分：_____

評　分　老　師：_____

Session 1

Scenario of System Analysis

Ice ball is also called "**Ice Hockey**". Ice hockey is a group sport that takes place on ice. Two teams of skaters wear ice skates, hold the clubs, compete for a rubber oblate ball on the ice rink to score the goal. Ice hockey is prevalent in northern North America (Northern Canada and the United States) and parts of northern Europe. It is also one of the winter Olympic Games and one of the four professional sports in North America.

You work for a multinational software design consultancy, and your company got a new project from IIHF (International Ice Hockey Federation) last month. You are requested to design an "**IIHF 2018 Competition System**" in the near days.

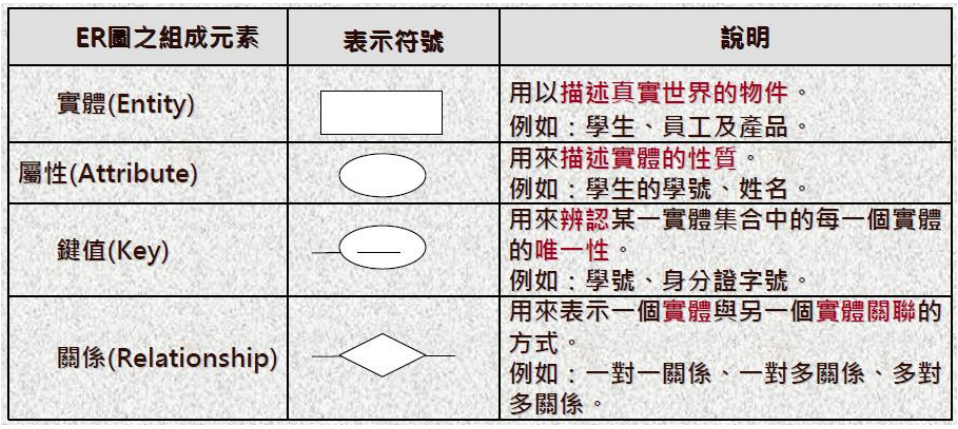
According to the system requirements IIHF collected and provided to you, you begin to start your task on system analysis and system design.

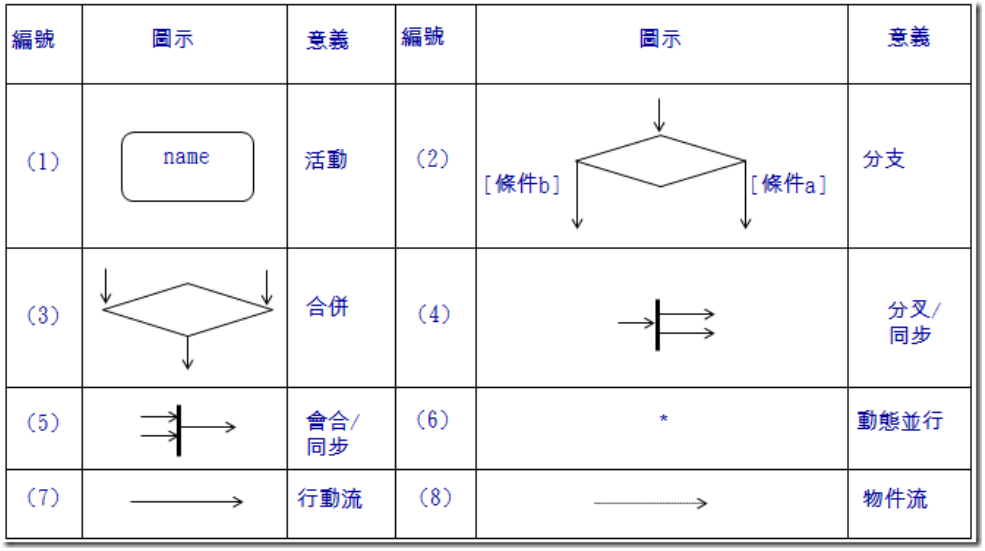
In order to achieve the customer's requirements of system function, user interface, data flow and storage, please use provided designing tools MS Visio 2016 and MS SQL Server 2014, refer to the data file ***"DatabaseDesign\Data\2018-IceHockey.xlsx"*** to build a system analysis and system design project. Your design results must include following task descriptions.

	Task Descriptions	Max Score	Actual Score
(1)	(a) Create a new database and name as ***IceHockey_2018_NM (NM: Your Workstation Number)***. Before time is up, please upload the resulting SQL database backup file to assigned server with the file name "***IceHockey_2018_ NM.BAK***".	2	
	(b) Please also upload those SQL database file to assigned server: ***IceHockey_2018_ NM.mdf*** ***IceHockey_2018_ NM.ldf***	1	
(2)	According to the account worksheet description provided by the data file ***2018 Ice Hockey.xlsx***, please create related accounts, permissions and required function items in the MS SQL data table, and name it "***2-Account***". (a) Account and required function items are completely. Account and Function Item must match each other, otherwise deduct 0.5 on each item.	3	

<table>
<tr><th colspan="2">Task Descriptions</th><th>Max Score</th><th>Actual Score</th></tr>
<tr><td></td><td>(b) Permission Notes CRUD : C=Create; R=Read; U=Update; D=Delete Data
Permissions and Function Item must match each other, otherwise deduct 0.5 on each item.

Authority Table
<table><tr><th>No.</th><th>Function Item</th><th>Guest</th><th>Team Administrator</th><th>Field Recorder</th><th>Record Analyst</th><th>General staff</th><th>System administrator</th></tr><tr><td>1</td><td>○○○</td><td>CRUD</td><td>CRUD</td><td>CRUD</td><td>CRUD</td><td>CRUD</td><td>CRUD</td></tr><tr><td>2</td><td>○○○</td><td>CRUD</td><td>CRUD</td><td>CRUD</td><td>CRUD</td><td>CRUD</td><td>CRUD</td></tr><tr><td>3</td><td>○○○</td><td>CRUD</td><td>CRUD</td><td>CRUD</td><td>CRUD</td><td>CRUD</td><td>CRUD</td></tr><tr><td>…</td><td>…</td><td>…</td><td>…</td><td>…</td><td>…</td><td>…</td><td>…</td></tr></table></td><td>3</td><td></td></tr>
<tr><td rowspan="5">(3)</td><td>Please use the Case Diagram, the file saved as a VSDX file, and name as "3-UseCaseDiagram.VSDX".
(a) Case representation of the case (Actor) defined are completely and correctly.
Deduct 1 on each obvious shortcoming.</td><td>6</td><td></td></tr>
<tr><td>(b) Case diagram of the role (Actor), case (Use Case) design are completely.
Deduct 0.5 on each obvious shortcoming.</td><td>3</td><td></td></tr>
<tr><td>(c) The association between the Actor and the Case (Case) and the flow design are completely.
Deduct 0.5 on each obvious shortcoming.</td><td>3</td><td></td></tr>
<tr><td>(d) Case diagrams describe are using Include and Extend.</td><td>2</td><td></td></tr>
<tr><td>(e) Case diagrams of the case (Actor), case (Use Case), the system boundary (System Boundary) relationship between the designed are completely.
Deduct 0.5 on each obvious shortcoming.</td><td>2</td><td></td></tr>
</table>

Task Descriptions		Max Score	Actual Score
(4)	Draw the ER Model, the entity contact mode diagram (ERD), the file saved as a VSDX file, and name as "***4-EntityDiagram.VSDX***". Reference to the following diagram to draw the ERD Model.  (a) ER Model Entity (Entity) are completely and correctly. Deduct 1on each obvious shortcoming.	5	
	(b) ER Model's attributes are completely. Deduct 1on each obvious shortcoming.	3	
	(c) ER model keys (Key) are completely. Deduct 1on each obvious shortcoming.	3	
	(d) Relationships of ER Model are completely. Deduct 1on each obvious shortcoming.	3	

Task Descriptions		Max Score	Actual Score
(5)	The Activity Diagram file is saved as a VSDX file with the name "***5-ActivityChart.VSDX***". Please refer the following diagram and draw it.  (a) Whether the design of each activity map could be used to identify the scope of the activity map.	5	
	(b) Whether the design of each activity diagram includes actions, initial points, Activity Final Node, and Activity Edge.	4	
	(c) Whether the design of each activity map is clear and completely.	2	
(6)	Please design a normalization of data table in the SQL environment at least to 3NF, create a database association diagram, save the file and export it as a PDF file, and name as "***6-DatabaseDiagram.PDF***". (a) The association of the relationship of database diagram is set correctly.	3	
	(b) Please set the display relationship labels.	2	
(7)	Please draw the development of the system Gantt chart, the file saved as a PDF file and name as "***7-GanttChart.PDF***". (a) Whether the setting period is consistent with the actual plan.	3	
	(b) Whether the week is set correctly.	2	
	(c) The starting date is 2018/05/01.	2	
	(d) The number of projects is more than 5 items.	2	
	(e) Whether the task is correct.	2	

Task Descriptions		Max Score	Actual Score
(8)	Please create a data sheet for your design and save the Word file, and name as "***8-DataDictionary.DOCX***". (a) The descriptions of Data Dictionary could in Chinese or English.	5	
	(b) The meaning of each data sheet is used for explanation.	2	
(9)	Build SQL Data (a) Design at least 10 data sheets. If the data sheets is designed under 10, it will be given points according to the proportion.	10	
	(b) Each table generates at least 5 test data.	5	
	(c) Query the number of wins, win percentages, and rankings for each team. Save the View file and name as "***viw_Ranking***".	5	
	(d) Check out the top 3 high scorers (Goal) of each team. Save the View file and name as "***viw_GoalTop3***".	5	
	(e) Generate any script containing the Drop and Create data table, and save the script name as "***9-Table01.SQL***".	2	
Total		**100**	