CS2310 Exercise 1

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(a) The activities involved in organizing a picnic are specified using IC cards as follows including:

   i.   Decide date, location and notify attendees

  ii.   Check the weather

 iii.   Prepare food

 iv.   Organize sports events for kids, adults and elders

  v.   Prepare rainy day back-up plan

 vi.   Prepare relative gears and equipment (sporting gears, tents, tableware and tables)

vii.   Prepare carpool

IC Card　　　　　　　　　　　　　　　　IC Name: Picnic_Host

Description: Organize a picnic
Interaction Pattern:

Mixed

My Task: pick a date, place, assign tasks, notify helpers and attendees
Time Critical Condition: Must finish in 1 day
Name of Other IC: Food_Helpers, Sport_Helpers, Weather_Helpers, Plan_B_Helper, Car_Helper
Message to Other IC: Picnic date, place and tasks
Other IC's Task: finish the task within the time frame
Card 1of 6 (If necessary please use several IC cards to describe an IC)

IC Card　　　　　　　　　　　　　　　　IC Name: Picnic_Host

Description: Organize a picnic
Interaction Pattern:

By Others with Interaction

My Task: notify Food_helper the date, place and prepare the food
Time Critical Condition: Must finish in 1 day
Name of Other IC: Food_Helper
Message to Other IC: Provide food
Other IC's Task: Provide food
Card 2of 6 (If necessary please use several IC cards to describe an IC)

IC Card

Description: Organize a picnic
Interaction Pattern:

By Others with Interaction
My Task: notify sport_helper the date, place and plan sport events
Time Critical Condition: Must finish in 1 day
Name of Other IC: Sport_Helper
Message to Other IC: Prepare sport events
Other IC's Task: Prepare sport events
Card 3of 6 (If necessary please use several IC cards to describe an IC)

IC Card

IC Name: Picnic_Host

Description: Organize a picnic
Interaction Pattern:

By Others with Interaction
My Task: notify Plan_B_Helper the date, place and prepare a back-up plan
Time Critical Condition: Must finish in a day
Name of Other IC: Plan_B_Helper
Message to Other IC: Prepare a rainy day plan
Other IC's Task: Prepare a rainy day plan
Card 4of 6 (If necessary please use several IC cards to describe an IC)

IC Card

IC Name: Picnic_Host

Description: Organize a picnic
Interaction Pattern:

By Others with Interaction
My Task: notify weather_Helper the date, place and check the weather
Time Critical Condition: Must finish in 1 day
Name of Other IC: weather_Helper
Message to Other IC: Check the weather
Other IC's Task: Check the weather
Card 5of 6 (If necessary please use several IC cards to describe an IC)

IC Card   IC Name: Picnic_Host

Description: Organize a picnic
Interaction Pattern:

By Others with Interaction

My Task: notify car_Helper the date, place and provide carpool
Time Critical Condition: Must finish in 1 day
Name of Other IC: Car_Helper
Message to Other IC: Provide carpool
Other IC's Task: Provide carpool
Card 6of 6 (If necessary please use several IC cards to describe an IC)

IC Card   IC Name: Food_Helper

Description: Provide food
Interaction Pattern:

Mixed

My Task: Prepare food for attendees
Time Critical Condition: must finish before picnic
Name of Other IC: tableware_Helper
Message to Other IC: Prepare tableware
Other IC's Task: Prepare tableware
Card 1of 1 (If necessary please use several IC cards to describe an IC)

IC Card   IC Name: Sport_Helper

Description: Organize sport events
Interaction Pattern:

Mixed

My Task: Organize sport events for kids, adults and elders
Time Critical Condition: Must finish in 1 day
Name of Other IC: Gears_Helper
Message to Other IC: bring sporting gears
Other IC's Task: bring sporting gears
Card 1of 1 (If necessary please use several IC cards to describe an IC)

IC Card

IC Name: Gears_Helper

Description: Prepare sporting gears
Interaction Pattern:

By Myself with Interaction
My Task: Prepare sporting gears and bring to picnic
Time Critical Condition: must finish before picnic
Name of Other IC: none
Message to Other IC: none
Other IC's Task: none
Card 1of 1 (If necessary please use several IC cards to describe an IC)

IC Card

IC Name: Weather_Helper

Description: Check the weather
Interaction Pattern:

By Myself with Interaction
My Task: Check the weather and report to Plan_Host
Time Critical Condition: check every day
Name of Other IC: Picnic_Host
Message to Other IC: weather forecast
Other IC's Task: none
Card 1of 1 (If necessary please use several IC cards to describe an IC)

IC Card

IC Name: Tableware_Helper

Description: Prepare tableware
Interaction Pattern:

By Myself with Interaction
My Task: Prepare tableware and tables bring to picnic
Time Critical Condition: must finish before picnic
Name of Other IC: none
Message to Other IC: none
Other IC's Task: none
Card 1of 1 (If necessary please use several IC cards to describe an IC)

IC Card   IC Name: tent_helper

Description: Prepare tents
Interaction Pattern:

By Myself with Interaction

My Task: Prepare tents and bring to picnic
Time Critical Condition: must finish before picnic
Name of Other IC: none
Message to Other IC: none
Other IC's Task: none
Card 1of 1 (If necessary please use several IC cards to describe an IC)

IC Card   IC Name: Plan_B_Helper

Description: Prepare Plan B
Interaction Pattern:

By Others with Interaction

My Task: Plan rainy day equipment
Time Critical Condition: Must finish in 2 day
Name of Other IC: tent_helper
Message to Other IC: bring tents
Other IC's Task: bring tents
Card 1of 2 (If necessary please use several IC cards to describe an IC)

IC Card   IC Name: Plan_B_Helper

Description: Prepare Plan B
Interaction Pattern:

By Others with Interaction

My Task: Plan rainy day activities
Time Critical Condition: Must finish in 2 day
Name of Other IC: Sport_Helper
Message to Other IC: Prepare rainy day sport events
Other IC's Task: Prepare rainy day sport events
Card 2of 2 (If necessary please use several IC cards to describe an IC)

(b) Patterns identified from the above activities:

  i. Decomposition:

Organizing a picnic can be decomposed into several sub tasks which may need further breaking down into many simple tasks according to their characteristics whether responses are needed or not. Each simple task then can be assigned to an IC card to be carried out. The pattern of decomposition is shown in Fig 1.
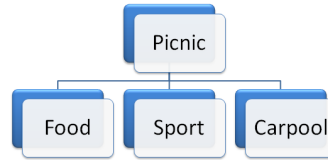

Fig 1: Decomposition Pattern

  ii. Transformation:

The top IC card of organizing a picnic is a mixed card and can be transformed into different interaction IC cards as shown in Fig 2. There are many activities associated with different types of interactions involved with in organizing a picnic and the IC card we begin with acts like a transform function which maps different activities from the original space onto other IC cards with various interactions in the feature domain. The extracted information and interactions are embedded in those practical IC cards which represent the abstract elements and relationships in the original space.
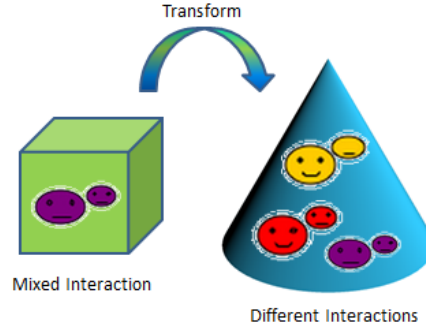

Fig 2: Transformation Pattern

  iii. Composition:

A successful picnic is a composition of several elements including food, sport events and games from which attendees can have emotion and social interactions. The purpose of hosting a picnic is getting people together and making them have a good time. The tents and carpool are also prepared so the guests don't have to worry about the weather. Organizing a picnic is equivalent to design a system and the needs of customers should be always taken into consideration in the first place and those needs are used to generate the blueprint of the system.

Fig 3: Composition Pattern