Systems Design Components
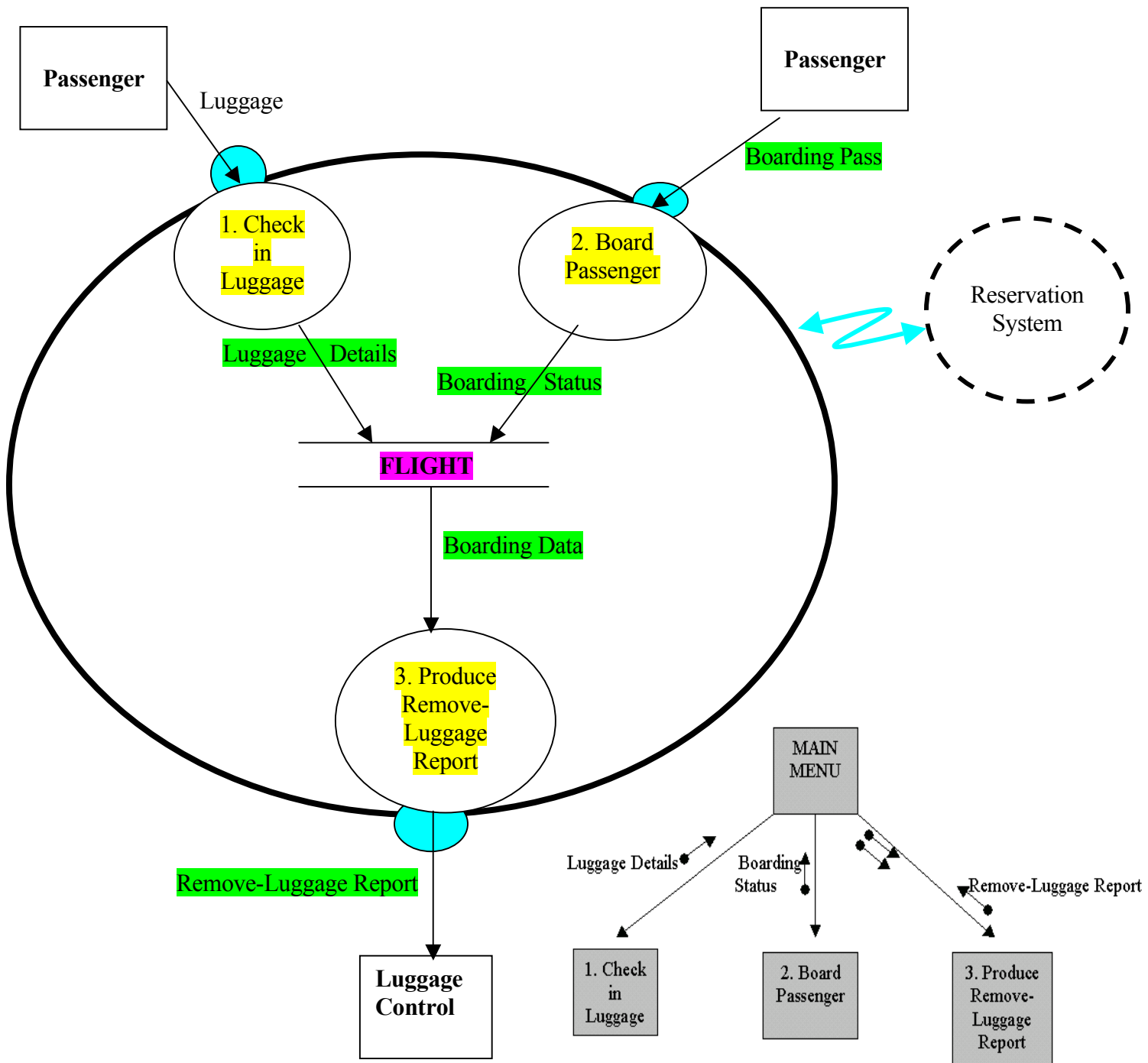
Design of
- data elements
- database
- process logic
- user interface
- system interfaces
- program structure

Passenger

Luggage

Passenger

Boarding Pass

1. Check in Luggage

2. Board Passenger

Reservation System

Luggage Details

Boarding Status

FLIGHT

Boarding Data

3. Produce Remove-Luggage Report

MAIN MENU

Remove-Luggage Report

Luggage Control

Luggage Details

Boarding Status

Remove-Luggage Report

1. Check in Luggage

2. Board Passenger

3. Produce Remove-Luggage Report

The Elements of Information System Design

Issues

Graphic tools

	Static/Structure	Dynamic/Flow
Data	**1. Database** • What data need to be stored? • How are they defined? • How should these data be grouped (into files)? • How should these files be linked? *Entity-Relationship Diagram*	**2. Data Flow** What are the data flows into, within, and out of the system? • What data need to be entered? From whom? Through what interface? • What are the internal processes within the system? • What information needs to be produced by the system? To whom? Through what interface? *Data Flow Diagram* *Interface Navigation Diagram*
Process	**3. Program Structure** • What processes should the system perform? • How are these processes to be organized and related to one another? *Structure Chart* *Action Diagram*	**4. Process Logic** • What is the internal, step-by-step logic within each process, linking its given inputs to its required outputs? *Flowchart* *Structured English/Pseudocode*

A Slice of I.S. Functionality

Input Output

User Interface

X Y

Application Structure

Application Logic

X

Y

X ⟶ P ⟹ Y

Storage

Retrieval

D a t a b a s e

A	B
C	D

1	2
3	4

☺	♫
♪	☻