



UTM
UNIVERSITI TEKNOLOGI MALAYSIA

SECJ2013-03

Data Structure Algorithm

SPORTS CENTRE REGISTRATION SYSTEM





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Introduction

- *Project Synopsis*
- *Project Objectives*



Introduction



Project Synopsis

For our mini project for DSA, we got the case study of **sports**. Therefore, we need to come out with a project from previous assignment on **sports center registration system**. Some data structure concepts applied here such as data searching, sorting via **array** and **linked-list implementation**. Plus, we also applied **queue** to our program to mimic the real-life situation.

Thus, this system can do **six main functions** which are data display, insertion, sorting, searching, deletion and daily equipment rental.



Introduction



Project Objectives

- To **develop deeper understanding** on the DSA subject.
- Gives ideas on **how to implement DSA concepts** in a real-life situation.
- Develop **team working and soft skills** among team members.
- To **develop a sport center system** with insert, delete, display, sort, search and rent equipment.

System Analysis & Design

- *Use Case Diagram*
- *Flowchart*



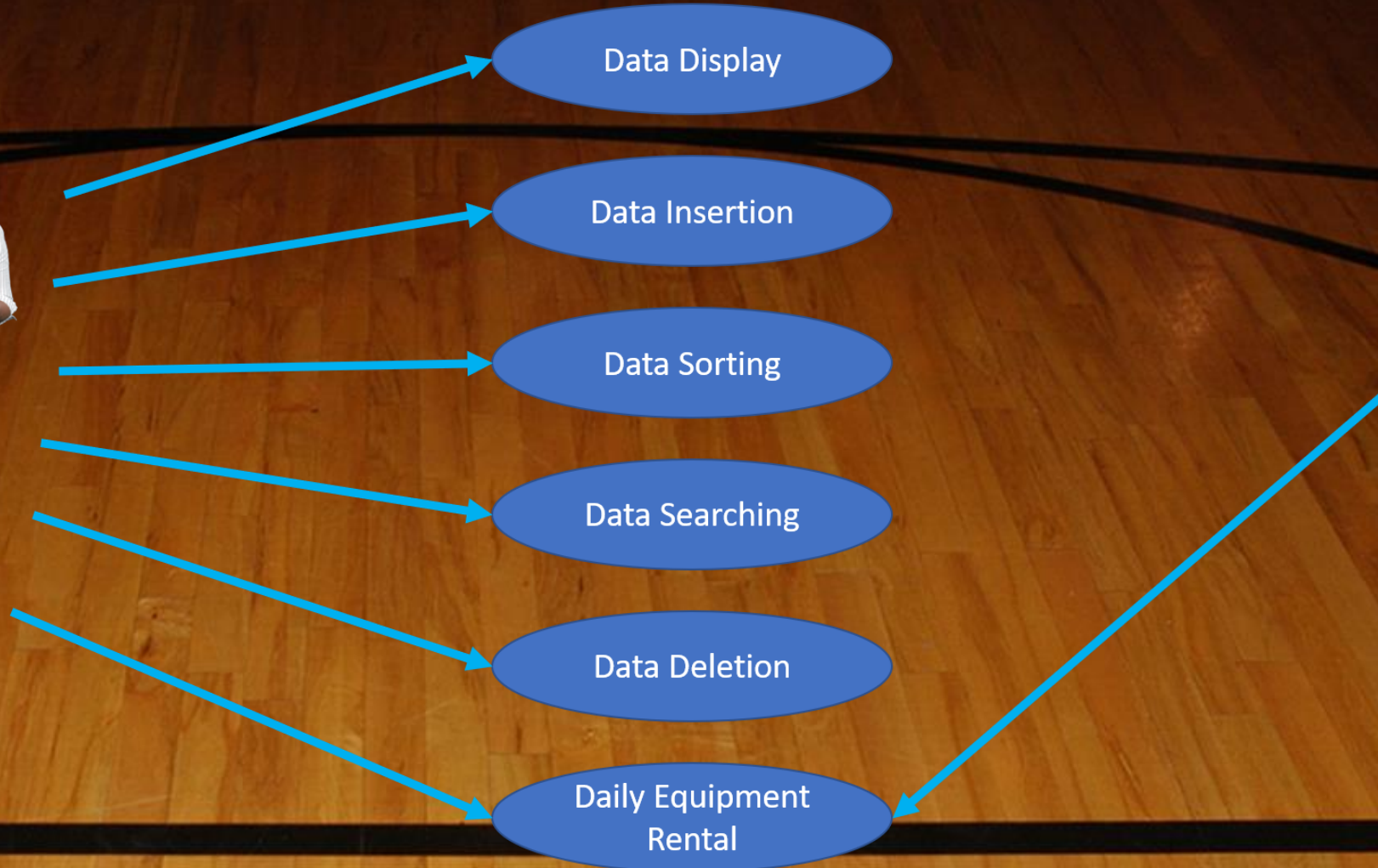


System Analysis & Design

Use Case Diagram



Admin

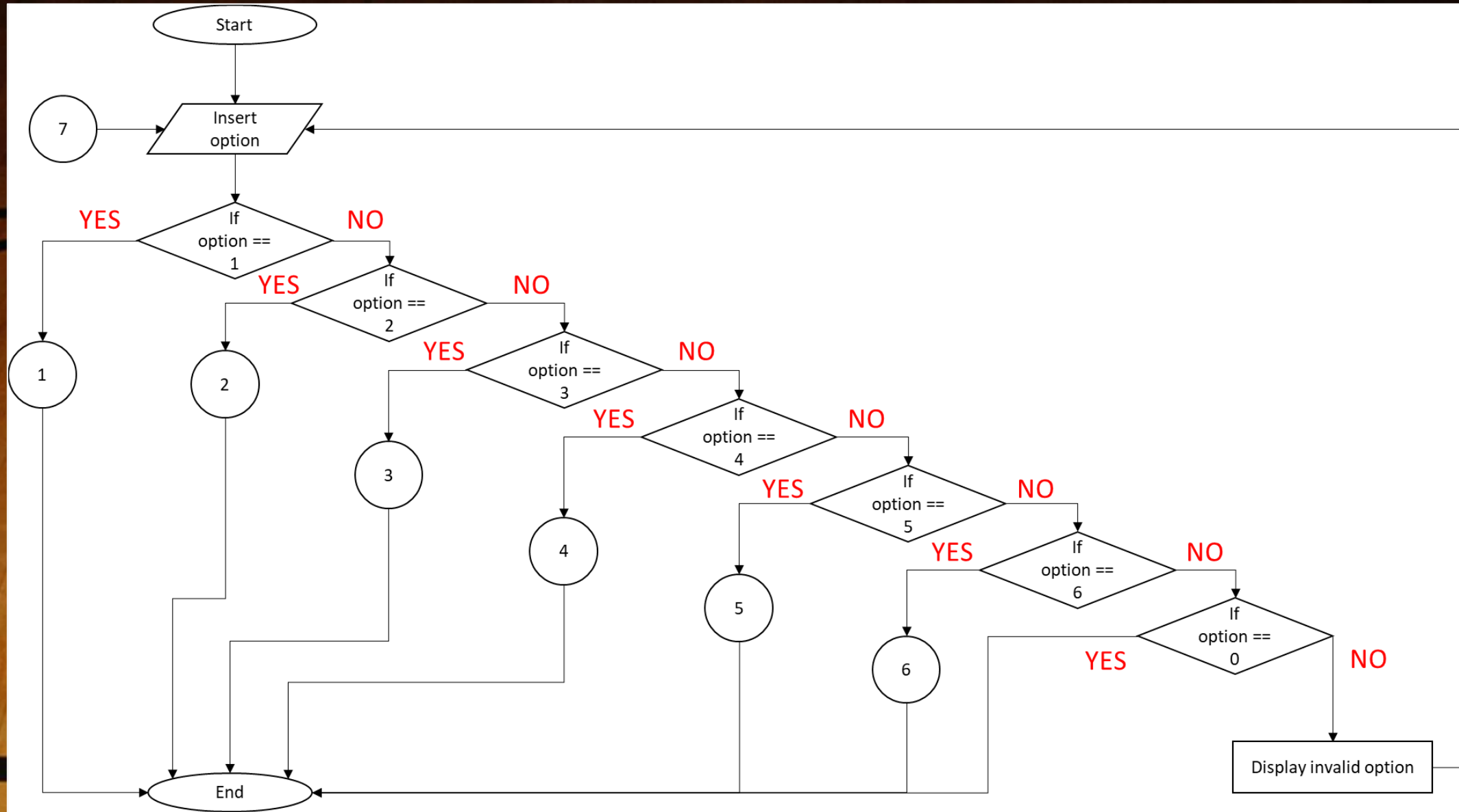


Customer



System Analysis & Design

Flowchart

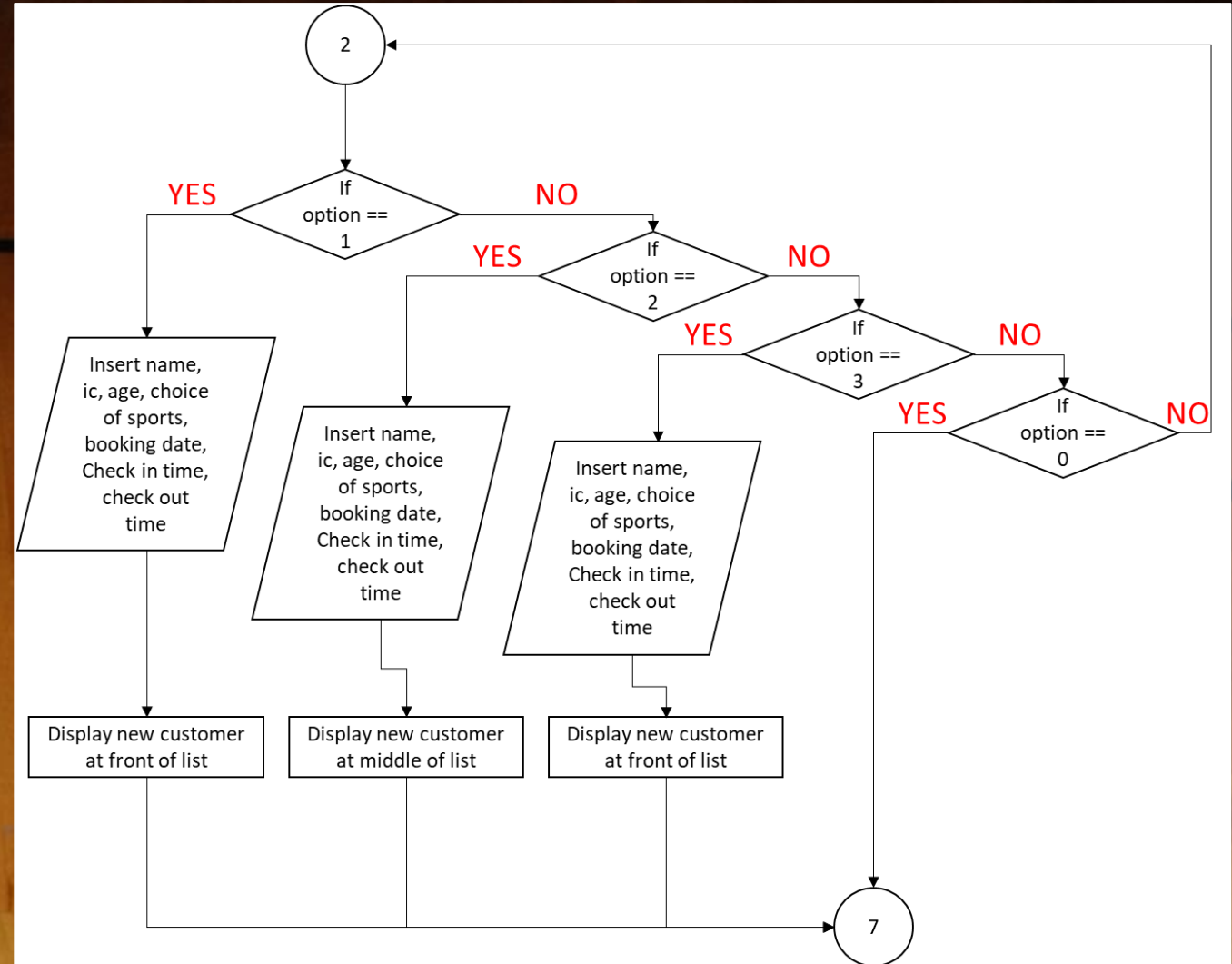
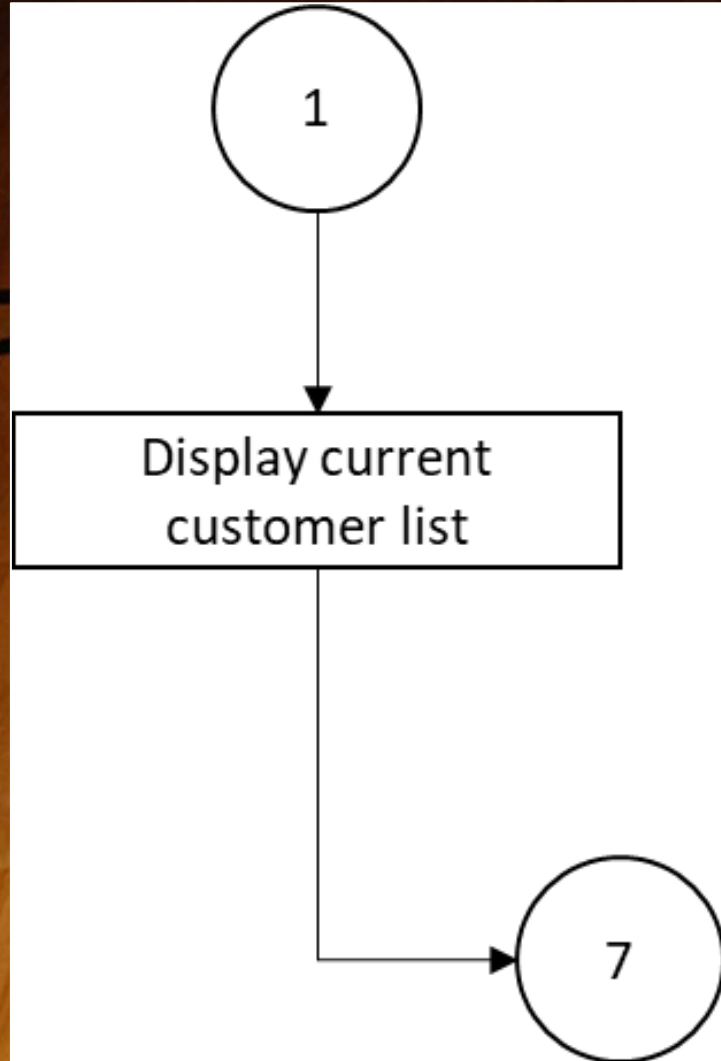




System Analysis & Design



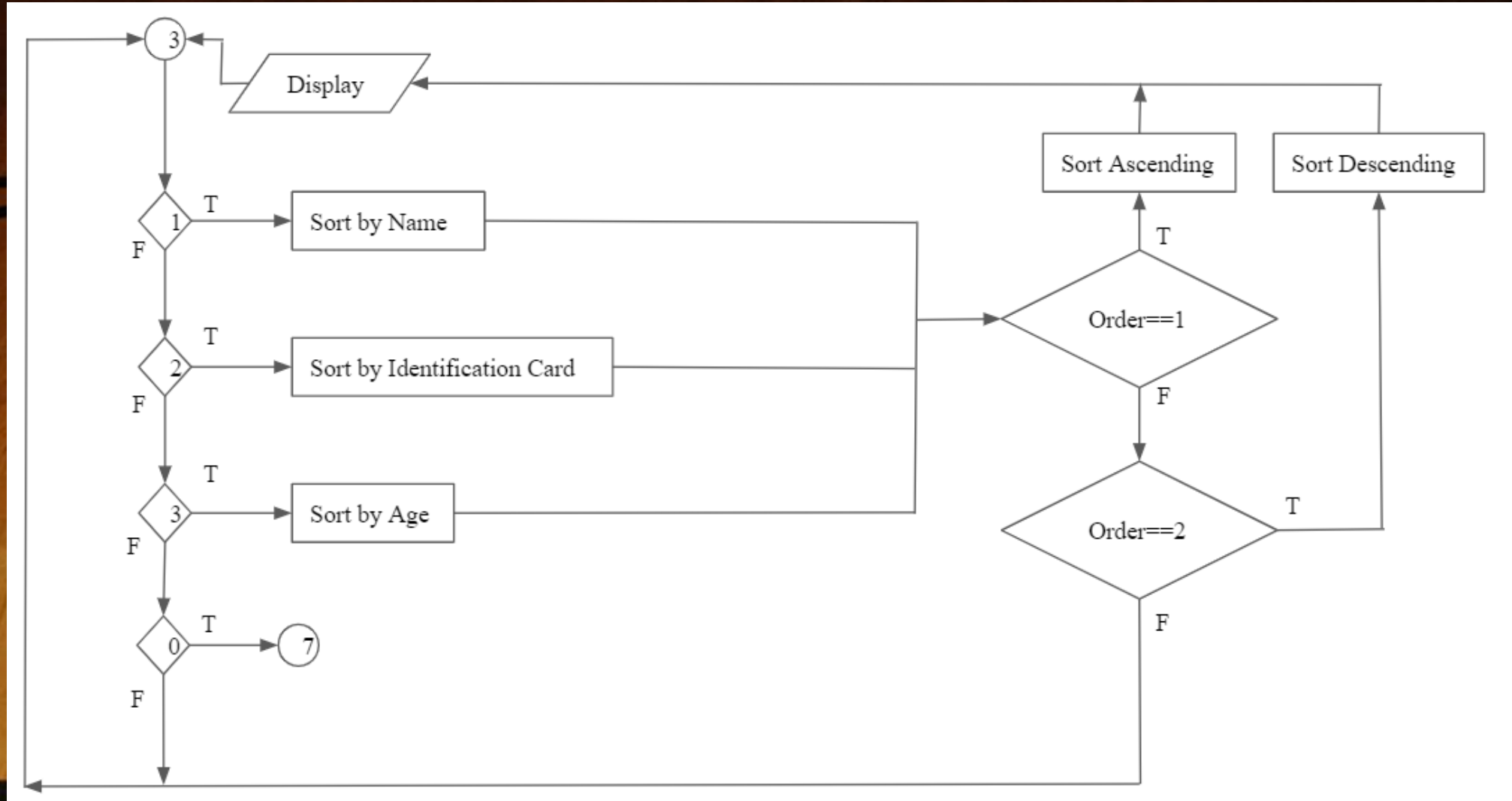
Flowchart





System Analysis & Design

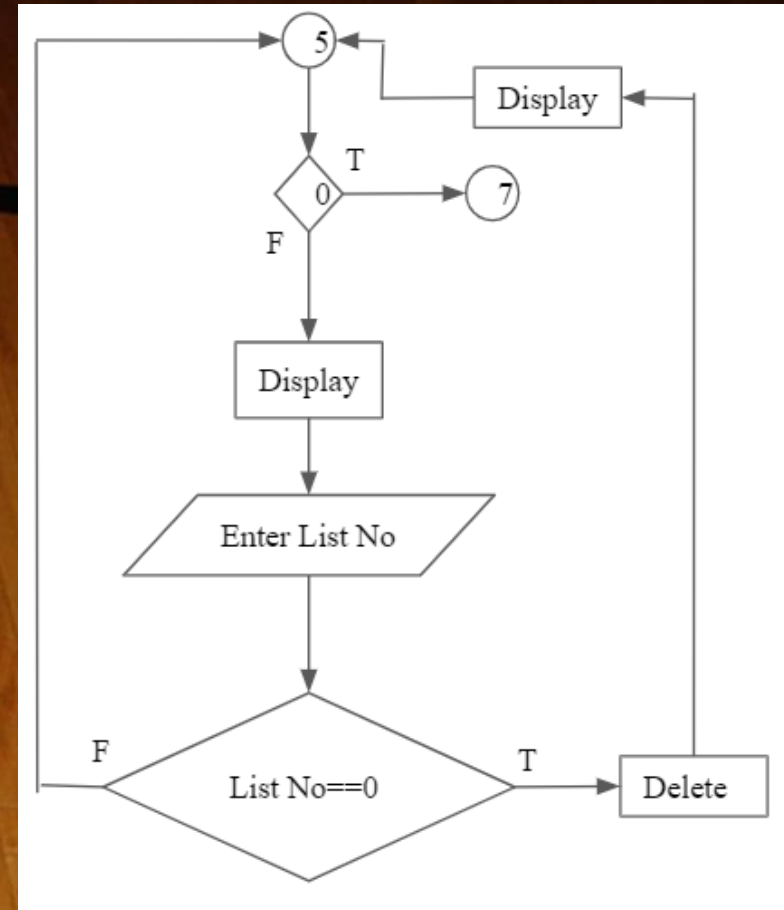
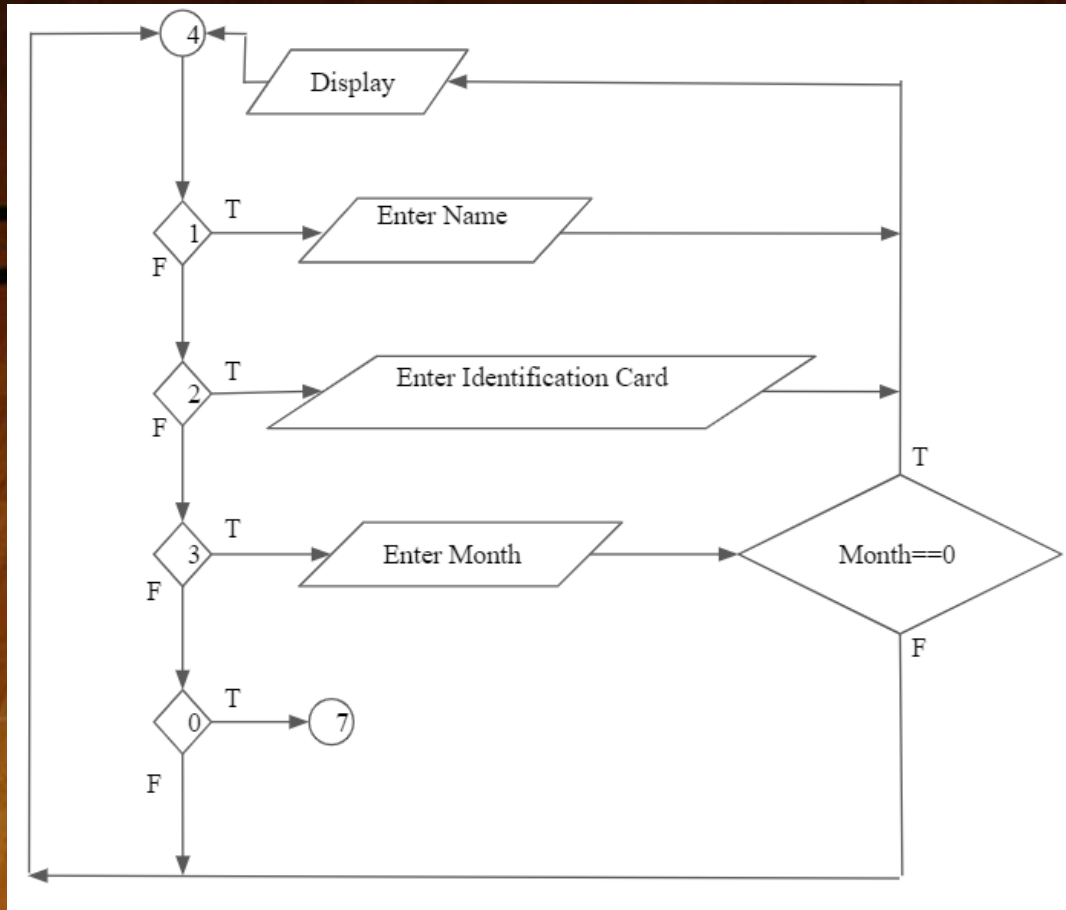
Flowchart





System Analysis & Design

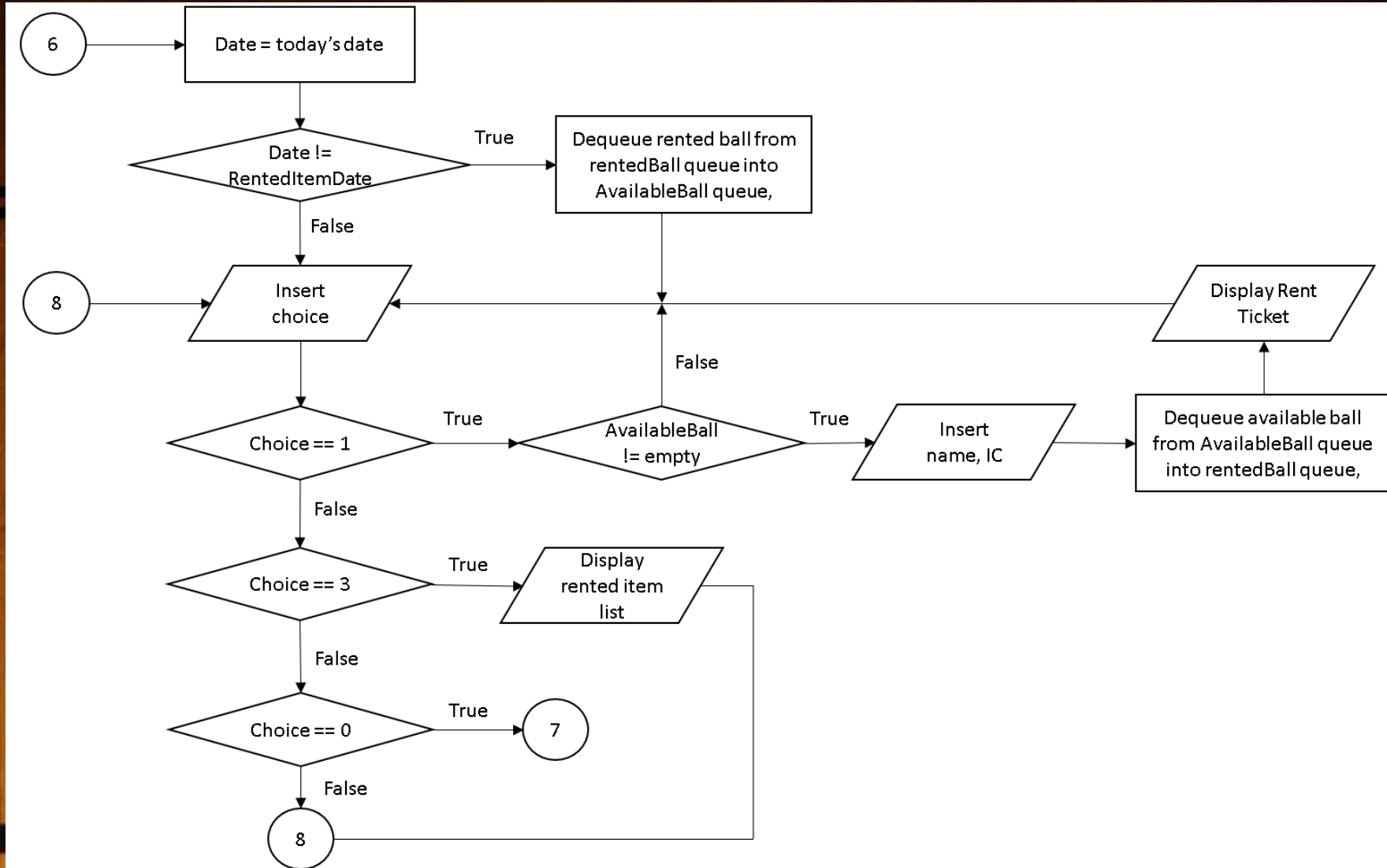
Flowchart





System Analysis & Design

Flowchart



System Prototype

- Screenshots Of System Program



Main Menu



SPORTS CENTRE CUSTOMERS RECORD

```
Choose Your Option
[1] Data Display
[2] Data Insertion
[3] Data Sorting
[4] Data Searching
[5] Data Deletion
[6] Daily Equipment Rental
-
[0]Exit
```

Option:

SPORTS CENTRE CUSTOMERS RECORD

```
Choose Your Option
[1] Data Display
[2] Data Insertion
[3] Data Sorting
[4] Data Searching
[5] Data Deletion
[6] Daily Equipment Rental
-
[0]Exit
```

Option: 0

Thank youuuuuuuu :)

Module 1 – Data Display



```
-----
SPORTS CENTRE CUSTOMERS RECORD
-----

Choose Your Option
[1] Data Display
[2] Data Insertion
[3] Data Sorting
[4] Data Searching
[5] Data Deletion
[6] Daily Equipment Rental
-
[0]Exit

Option: 1

Customers List
-----
No  Name                Age  Identification Card  Date  Month      Sport Type  Check InCheck Out
1   Harith Hamizan      20   001015056901       16   May        Tennis      800   1100
2   Ainul Daniesya     31   890130148814       14   July       Ping Pong   900   1100
3   Pavithra Rajan     37   831118035172       8    January    Bowling     1600  1900
4   Looi Jay            42   780527023048       9    February   Futsal      2000  2300
5   Uzair Hakimi       25   950304011217       21   December   Badminton   2000  2300
6   Riveena Andria     32   880715100366       18   November   Swimming    1400  1700
7   Wing Xing          18   020217081158       29   September  Bowling     1100  1400
8   Nurul Ain          24   960616148842       15   Mac        Netball     1500  1800
9   Saiful Badri       19   010409018733       1    April      Badminton   800   1100
10  Farhan Amir        28   921228031859       3    July       Futsal      2100  2300
```


Module 2 – Data Insertion



```
DATA INSERTION
-----
Customers List
-----
No  Name          Age  Identification Card  Date  Month  Sport Type  Check InCheck Out
1  Ahmad Ali      17  030801060298       9     July   Badminton   1800 2000
2  Harith Hamizan 20  001015056901      16     May    Tennis      800 1100
3  Ainul Daniesya 31  890130148814      14     July   Ping Pong   900 1100
4  Pavithra Rajan 37  831118035172       8     January Bowling     1600 1900
5  Looi Jay       42  780527023048       9     February Futsal      2000 2300
6  Uzair Hakimi   25  950304011217      21     December Badminton   2000 2300
7  Riveena Andria 32  880715100366      18     November Swimming   1400 1700
8  Wing Xing     18  020217081158      29     September Bowling     1100 1400
9  Nurul Ain     24  960616148842      15     Mac     Netball     1500 1800
10 Saiful Badri  19  010409018733       1     April  Badminton   800 1100
11 Farhan Amir  28  921228031859       3     July    Futsal      2100 2300

Choose Your Option
[1] Insert data in the beginning of the list
[2] Insert data in the middle of the list
[3] Insert data in the end of the list
-
[0]Back

Option:
```

1

```
DATA INSERTION
-----
Customers List
-----
No  Name          Age  Identification Card  Date  Month  Sport Type  Check InCheck Out
1  Harith Hamizan 20  001015056901      16     May    Tennis      800 1100
2  Ainul Daniesya 31  890130148814      14     July   Ping Pong   900 1100
3  Pavithra Rajan 37  831118035172       8     January Bowling     1600 1900
4  Looi Jay       42  780527023048       9     February Futsal      2000 2300
5  Uzair Hakimi   25  950304011217      21     December Badminton   2000 2300
6  Riveena Andria 32  880715100366      18     November Swimming   1400 1700
7  Wing Xing     18  020217081158      29     September Bowling     1100 1400
8  Nurul Ain     24  960616148842      15     Mac     Netball     1500 1800
9  Saiful Badri  19  010409018733       1     April  Badminton   800 1100
10 Farhan Amir  28  921228031859       3     July    Futsal      2100 2300

Choose Your Option
[1] Insert data in the beginning of the list
[2] Insert data in the middle of the list
[3] Insert data in the end of the list
-
[0]Back

Option: 4
Invalid option! Please try again.
```

2

```
Choose Your Option
[1] Insert data in the beginning of the list
[2] Insert data in the middle of the list
[3] Insert data in the end of the list
-
[0]Back

Option: 1

Please fill the information for the new data :

Name : Ahmad Ali
Age : 17
IC : 030801060298
Sport Type : [1] Futsal
              [2] Badminton
              [3] Netball
              [4] Bowling
              [5] Swimming
              [6] Ping Pong
              [7] Tennis

Choice: 2

Date of Check In and Check Out (i.e.: 7 January) : 9 July
Check In time (24H) : 1800
Check Out time (24H) : 2000
```

3

```
The list after insertion process.

Customers List
-----
No  Name          Age  Identification Card  Date  Month  Sport Type  Check InCheck Out
1  Ahmad Ali      17  030801060298       9     July   Badminton   1800 2000
2  Harith Hamizan 20  001015056901      16     May    Tennis      800 1100
3  Ainul Daniesya 31  890130148814      14     July   Ping Pong   900 1100
4  Pavithra Rajan 37  831118035172       8     January Bowling     1600 1900
5  Looi Jay       42  780527023048       9     February Futsal      2000 2300
6  Uzair Hakimi   25  950304011217      21     December Badminton   2000 2300
7  Riveena Andria 32  880715100366      18     November Swimming   1400 1700
8  Wing Xing     18  020217081158      29     September Bowling     1100 1400
9  Nurul Ain     24  960616148842      15     Mac     Netball     1500 1800
10 Saiful Badri  19  010409018733       1     April  Badminton   800 1100
11 Farhan Amir  28  921228031859       3     July    Futsal      2100 2300

Returning to main menu.
```

4

Module 3 – Data Sorting



DATA SORTING

```
Choose Your Option
[1] Sort by Name
[2] Sort by Identification Card
[3] Sort by Age
-
[0]Back
```

Option:

1

Option: 1

```
Choose Your Option
[1]Ascending Order
[2]Descending Order
-
[0]Back
```

Option:

2

```
Choose Your Option
[1]Ascending Order
[2]Descending Order
-
[0]Back
```

Option: 1

Sorting process successful. Please refer to the new list below.

Customers List

No	Name	Age	Identification Card	Date	Month	Sport Type	Check In	Check Out
1	Ainul Daniesya	31	890130148814	14	July	Ping Pong	900	1100
2	Farhan Amir	28	921228031859	3	July	Futsal	2100	2300
3	Harith Hamizan	20	001015056901	16	May	Tennis	800	1100
4	Looi Jay	42	780527023048	9	February	Futsal	2000	2300
5	Nurul Ain	24	960616148842	15	Mac	Netball	1500	1800
6	Pavithra Rajan	37	831118035172	8	January	Bowling	1600	1900
7	Riveena Andria	32	880715100366	18	November	Swimming	1400	1700
8	Saiful Badri	19	010409018733	1	April	Badminton	800	1100
9	Uzair Hakimi	25	950304011217	21	December	Badminton	2000	2300
10	Wing Xing	18	020217081158	29	September	Bowling	1100	1400

3

Module 4 – Data Searching



DATA SEARCHING

```
Choose Your Option
[1] Search by Name
[2] Search by Identification Card
[3] Search by Month
-
[0]Back
```

Option:

1

DATA SEARCHING

```
Choose Your Option
[1] Search by Name
[2] Search by Identification Card
[3] Search by Month
-
[0]Back
```

Option: 4

Invalid option ! Please try again.

2

DATA SEARCHING

```
Choose Your Option
[1] Search by Name
[2] Search by Identification Card
[3] Search by Month
-
[0]Back
```

Option: 1

Enter Name: Wing Xing

Below is the information of Wing Xing:

```
Name : Wing Xing
Age : 18
IC : 020217081158
Sport : Bowling
Date : 29 September
Checked in time : 1100
Checked out time : 1400
```

3

DATA SEARCHING

```
Choose Your Option
[1] Search by Name
[2] Search by Identification Card
[3] Search by Month
-
[0]Back
```

Option: 1

Enter Name: Ronaldo

There is no customer named Ronaldo in the record.

4

Module 4 – Data Searching



```
Option: 2
Enter Identification Card: 001015056901

Below is the information about the customer with IC 001015056901

Name : Harith Hamizan
Age : 20
IC : 001015056901
Sport : Tennis
Date : 16 May
Checked in time : 800
Checked out time : 1100
```

5

```
Option: 2
Enter Identification Card: 780527023041

There is no customer with IC 780527023041 in the record
```

6

```
Option: 3
Choose which month
[1] January
[2] February
[3] March
[4] April
[5] May
[6] June
[7] July
[8] August
[9] September
[10] October
[11] November
[12] December
-
[0] Back

Option: 7
Below is the customer(s) that used the sport centre in July :
```

No	Name	Age	Identification Card	Date	Month	Sport Type	Check In	Check Out
1	Ainul Daniesya	31	890130148814	14	July	Ping Pong	900	1100
2	Farhan Amir	28	921228031859	3	July	Futsal	2100	2300

7

Module 5 – Data Deletion

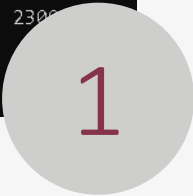


```
-----
DATA DELETION
-----

Current List :

Customers List
-----
No  Name      Age  Identification Card  Date  Month  Sport Type  Check In  Check Out
1  Harith Hamizan  20  001015056901  16  May    Tennis      800      1100
2  Ainul Daniesya  31  890130148814  14  July   Ping Pong   900      1100
3  Pavithra Rajan  37  831118035172  8   January Bowling     1600     1900
4  Looi Jay        42  780527023048  9   February Futsal     2000     2300
5  Uzair Hakimi    25  950304011217  21  December Badminton  2000     2300
6  Riveena Andria  32  880715100366  18  November Swimming   1400     1700
7  Wing Xing       18  020217081158  29  September Bowling     1100     1400
8  Nurul Ain       24  960616148842  15  Mac     Netball    1500     1800
9  Saiful Badri    19  010409018733  1   April   Badminton  800      1100
10 Farhan Amir    28  921228031859  3   July    Futsal     2100     2300

Select which customer record you want to delete ('0' to return)
Option :
```

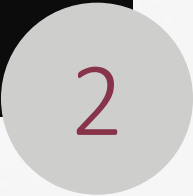


```
-----
DATA DELETION
-----

Customers List
-----
No  Name      Age  Identification Card  Date  Month  Sport Type  Check In  Check Out
1  Harith Hamizan  20  001015056901  16  May    Tennis      800      1100
2  Ainul Daniesya  31  890130148814  14  July   Ping Pong   900      1100
3  Pavithra Rajan  37  831118035172  8   January Bowling     1600     1900
4  Looi Jay        42  780527023048  9   February Futsal     2000     2300
5  Uzair Hakimi    25  950304011217  21  December Badminton  2000     2300
6  Riveena Andria  32  880715100366  18  November Swimming   1400     1700
7  Wing Xing       18  020217081158  29  September Bowling     1100     1400
8  Nurul Ain       24  960616148842  15  Mac     Netball    1500     1800
9  Saiful Badri    19  010409018733  1   April   Badminton  800      1100
10 Farhan Amir    28  921228031859  3   July    Futsal     2100     2300

Select which customer record you want to delete ('0' to return)
Option : 11

There is no number '11' in the list. Please try again.
```



```
Select which customer record you want to delete ('0' to return)
Option : 1

Delete the record for Harith Hamizan ? Option (Y/N) : Y

The list after deletion process :

Customers List
-----
No  Name      Age  Identification Card  Date  Month  Sport Type  Check In  Check Out
1  Ainul Daniesya  31  890130148814  14  July   Ping Pong   900      1100
2  Pavithra Rajan  37  831118035172  8   January Bowling     1600     1900
3  Looi Jay        42  780527023048  9   February Futsal     2000     2300
4  Uzair Hakimi    25  950304011217  21  December Badminton  2000     2300
5  Riveena Andria  32  880715100366  18  November Swimming   1400     1700
6  Wing Xing       18  020217081158  29  September Bowling     1100     1400
7  Nurul Ain       24  960616148842  15  Mac     Netball    1500     1800
8  Saiful Badri    19  010409018733  1   April   Badminton  800      1100
9  Farhan Amir    28  921228031859  3   July    Futsal     2100     2300
```



Module 6 – Daily Equipment Rental



```
Equipment Rental - 29 January
```

```
Choose Your Option
[1] Rent a futsal ball
[2] Rent a racket [Coming Soon]
[3] Display rental record.
-
[0]Back
```

Option:

1

```
Equipment Rental - 29 January
```

```
Choose Your Option
[1] Rent a futsal ball [Not Available]
[2] Rent a racket [Coming Soon]
[3] Display rental record.
-
[0]Back
```

Option: 1

All futsal balls have been rented for the day. Please try again tom

2



System Demonstration



4

- Module 1 → Iskandar
- Module 2 → Iskandar
- Module 3 → Arif Amiruddin
- Module 4 → Arif Amiruddin
- Module 5 → Arif Amiruddin
- Module 6 → 'Afif Azhan

Project Conclusion





Conclusion



In conclusion, we achieved our objectives to come out with a sports center registration system by implementing certain concepts that we learned in Data Structure & Algorithm course. We believe that our system implementation may help the staffs of the sports center to overcome an array of situation in managing the facilities easily.



THANK YOU

SPORTS CENTRE
REGISTRATION SYSTEM

