

Software Requirement Analysis (SRA)

Group-12

Govinda Rohith Y (CS21BTECH11062)

R Bhargava Ram (CS21BTECH11052)

P Pranav (CS21BTECH11062)

Teja (CS21BTECH11059)

Contents

1	Context Diagram:	2
2	Data Flow Diagrams:	2
2.1	DFD1:	2
2.1.1	Description :	2
2.2	DFD2:	3
2.2.1	Description :	5
2.3	Final DFD:	5
3	Function point analysis:	5
3.1	UFP Calculation	5
3.1.1	Explanation:	5
3.2	CAF Calculation	6
3.2.1	Explanation:	6
3.3	Overall calculation:	6

1 Context Diagram:

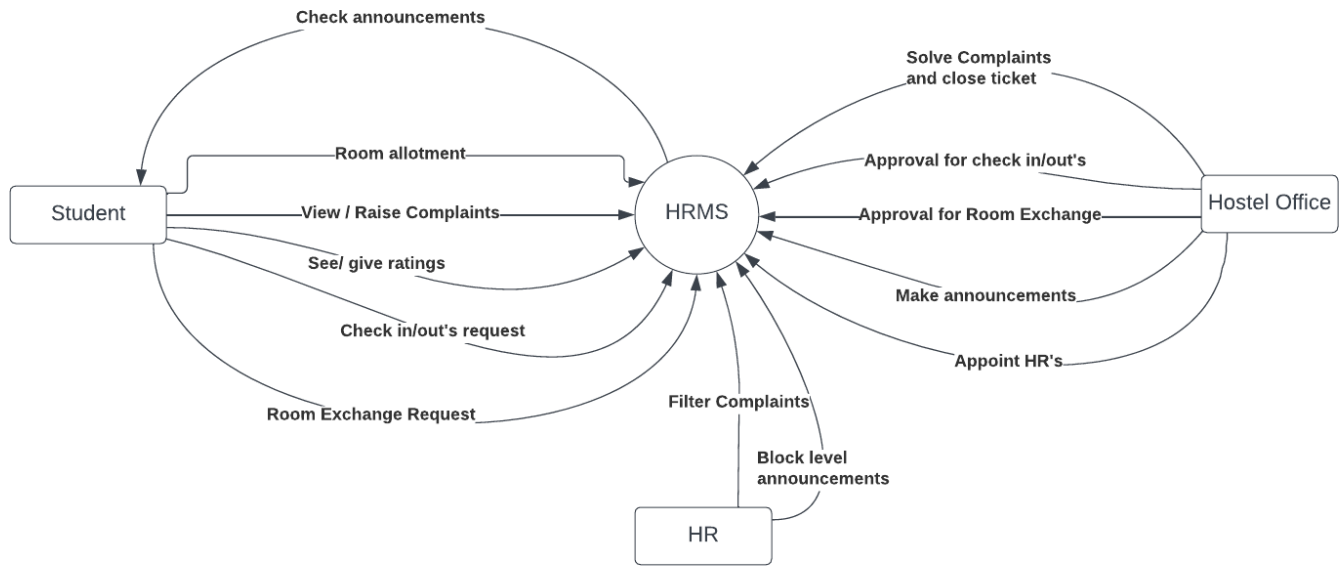


Figure 1: Context Diagram

2 Data Flow Diagrams:

2.1 DFD1:

2.1.1 Description :

The above DFD captures various process in our website like room allocations, room exchanges, complaints etc, along with the data flow between them. There are mainly eight process, five external data and three users. These process include:

- **Authentication:** This process takes and checks the input credentials given by the user.
- **Announcements:** This process takes various announcements from HR and Hostel Office(HO) and stores them in database and display it to students.
- **Complaint management:** This process takes complaints from student and filter those complaints (by HR) and sends them to database and HO.
- **HR Management:** This process is initiated when HO wants to change a HR. This takes details of New HR and updates details accordingly.
- **Room Allocation:** This process takes the room requirements from various students and update the database accordingly.
- **Room Exchange:** This process is initiated when two students give a room exchange request. Then HO also needs to provide approval to swap rooms.

- **Check in/out:** This process is initiated when a student wants to check out from his room and submits a request. Then after approval is received needed from HO the database is updated accordingly.
- **Review:** The students give reviews to their current hostel blocks. This process takes this as input and updates the average rating of hostel blocks.

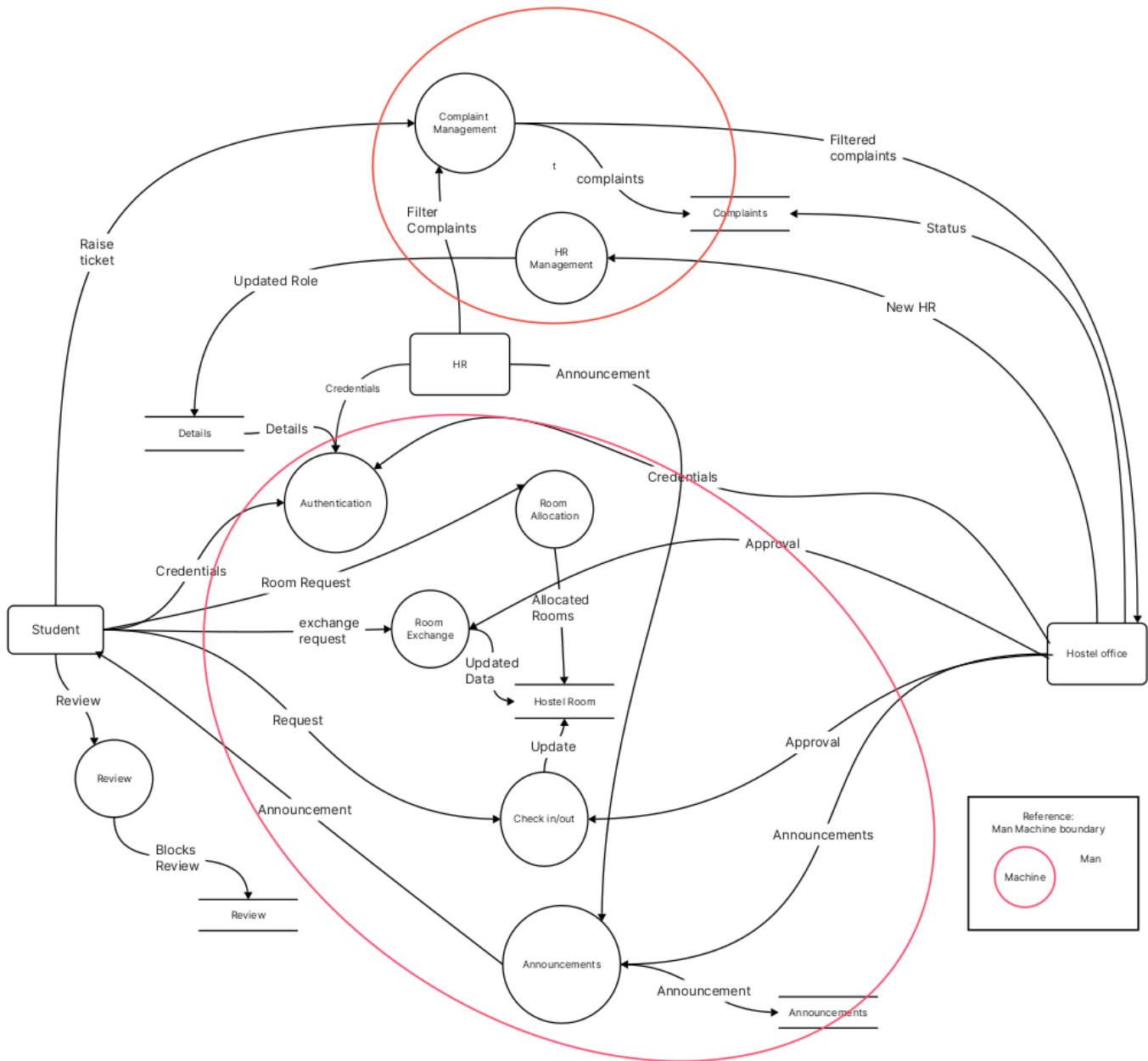


Figure 2: DFD-1

2.2 DFD2:

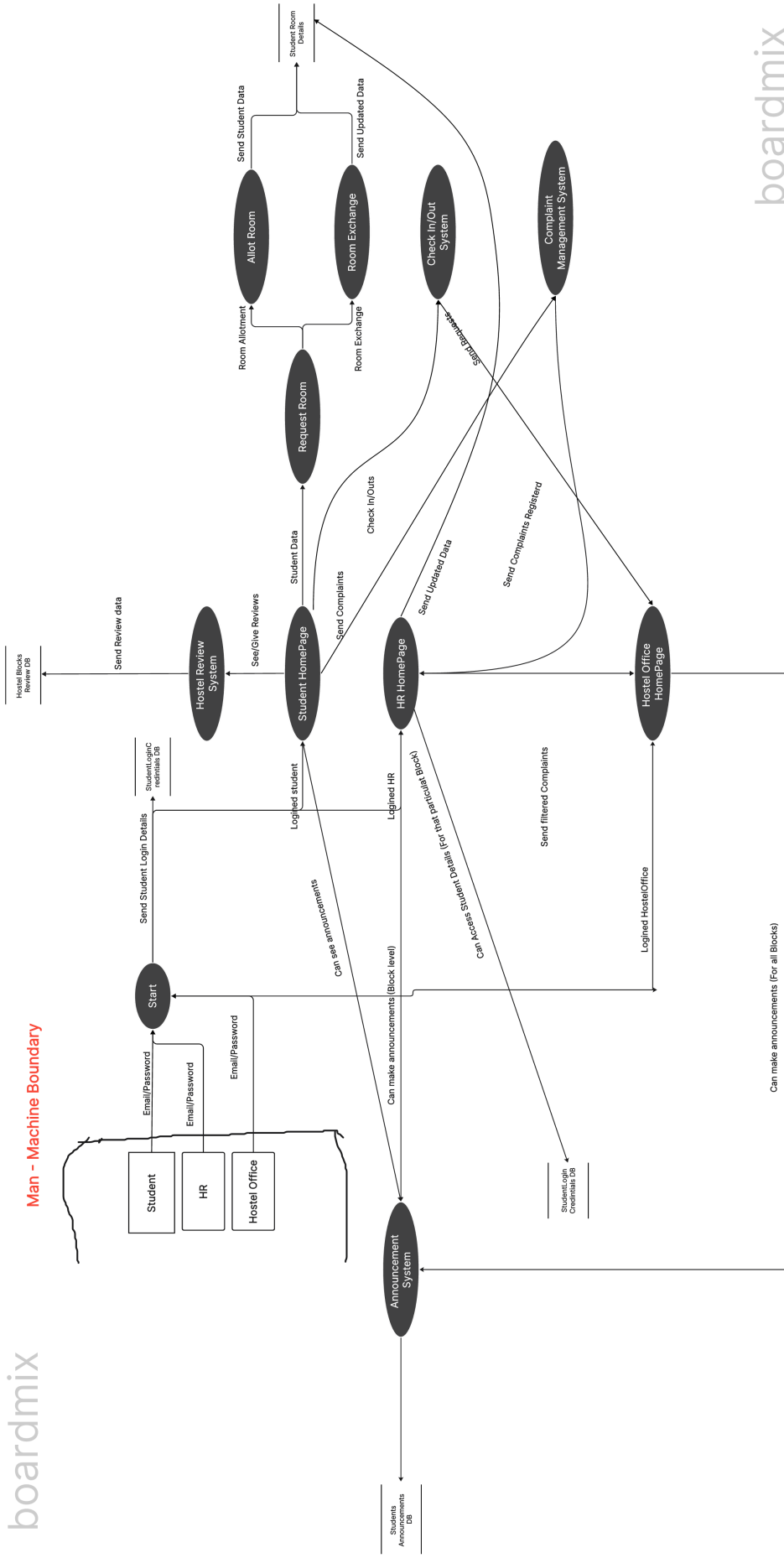


Figure 3: DFD-2

2.2.1 Description :

We have 3 roles: student, HR(Hostel Representative), Hostel Office. Students can register a hostel room, exchange rooms on mutual condition, and can see the announcements given by Hostel office or HR's of their respective blocks. Students can also send complaints (like water problems, room related issues etc) to the HR. HR sees all the complaints sent by the students and filters the complaints and then sends them to the Hostel office. The Hostel Office will take action and resolve the complaints. Students should ask for the check in/out permission to the hostel office. HR can access the details of the students of their respective blocks and the Hostel office can access the student details of all the blocks.

2.3 Final DFD:

Although both DFD suit for our purpose but we chose the first DFD. First DFD is good because of the following reasons:

1. The complexity level of first is simple in terms of second ones.
2. In the second Data Flow Diagram (DFD), retain the room exchange option exclusively for students who have already registered their hostel rooms. This helps in minimizing confusion and streamlining the process for those seeking room exchanges.
3. For new students, limit the room request process to display only the room allocation option. This simplifies the interface and ensures that new students focus solely on securing their initial room assignments, without the option for room exchanges.
4. The login process in second one is centralized which make it difficult to analyse views of separate users.

3 Function point analysis:

3.1 UFP Calculation

Measurement Parameter	Counts	Weighting factor (Average)	Value (Avg)
External Inputs (EI)	13	4	52
External Outputs (EO)	14	5	70
External Enquired (EQ)	5	4	20
Internal Logic files (ILF)	5	10	50
External Logic File (ELF)	1	7	7
UFP=Total count=			199

Table 1: Table for calculating Unadjusted Functional Point (UFP)

3.1.1 Explanation:

The above table is drawn according to DFD and uses cases described in SRS.

3.2 CAF Calculation

Aspect/value	Scale (0-5)
Data Communication	0
Distributed Data Processing	0
Performance	4
Heavily Used Configuration	3
Transaction Rate	4
Online Data Entry	5
End-User Efficiency	2
Online Update	2
Complex Processing	3
Reusability	3
Installation Ease	5
Operational Ease	4
Multiple Sites	0
Facilitate Change	2
Total	37

Table 2: Complexity Adjustment Factor (CAF) Table

3.2.1 Explanation:

We rated the above aspects on a scale of 0-5(Low to high importance). Taking various aspects into considerations like future use, implementations of current system.

3.3 Overall calculation:

$$FP = UFP \times CAF$$

$$\text{From Table 2 } UFP = 199$$

$$CAF = 0.065 + (0.01 \times \sum F_i)$$

$$\text{From Table 1 } \sum F_i = 37$$

$$\Rightarrow CAF = 0.65 + 0.01 \times 37 = 1.02$$

$$\boxed{FP = 199 \times 1.02 = 202.98}$$

$$\text{Considering, } 1 \text{ FP} = 70 \text{ LOC}$$

$$\Rightarrow \boxed{LOC = 70 * 202.98 = 14208.6 \approx 14209}$$