

# **Automation of Academic Activities (AAA)**

## **1. Background of the project:**

In this course, CSE303 Database Management System we were instructed to find a real world business system and design a Software for that. We are working on a project named Automation of Academic Activities which is an online based software where we can apply the knowledge which we are acquiring from the course CSE303 Database Management System.

So, here comes our project “Automation of Academic Activities” with the objective to store data more efficiently and with less redundancy. Automation of Academic Activities (AAA) is an online system that is designed to facilitate the activities of an academic institution. It is an automated system that will give services to the Academic Institution communities- Students, Faculties, Staffs and other groups. This automated system will be maintained by the Office of the Registrar.

Moreover we want to automate the whole academic activity sectors. Like- course registration. Course retake, student attendance, grade submission, review grades, course offering, and controlling centralized exams and so on.

The Automation of Academic Activities (AAA) will benefit any academic institute like University. It also provides a less time consuming process for viewing, adding, editing and deleting the marks of the students. Online System Project consists many useful elements: an enhanced Student module for Registration, Edit Profile, View Test history, Change Password. The project provides facilities like online registration and profile creation of students thus reducing paperwork and automating the record generation process in an educational institution. Calculate results, store test results. Student Information system will store all the details of the students including their background information, educational qualifications, personal details and all the information related to their resume. The academic activity automation System allows students, through Internet, to register, drop, or add courses within the registration period and from this system faculty can take attendance of the students. The System provides for students the option to register courses, without the advisor’s prior approval, offered by their schools during the scheduled

registration periods. The students can modify their course selection by adding and/or dropping courses.

We think our skill to develop a software will greatly increase due to this project. AAA will cover a vast System of an organization. This can't be done alone in a semester's time. So we formed groups of 5-6 persons in each group. In software industry, collaboration is the key to success. We can practice that strategy in this way of learning and working for the team. We can learn to collaborate and develop a system together as a team will obviously make us more practical and competitive in the software industry. Moreover its least to say that we will learn Database Management deeply and will also acquire great knowledge about Dot Net framework and C# heavily.

The ultimate goal is to make the academic system of activities easier and automated through an online integrated software complete with web server and database server. It will make a unique interface for the users like register, faculty and students with unique permission and data control to interact with the software and fulfill their demand through the automated system devised by "Academic Activity Automation" project. There will be no hassles in data storing and sorting out information from the stored data. The activities will be automated and regulated by the system more efficiently than the previous model.

## **2. Background of the Organization:**

The organization for which the project stands for is "Independent University of Bangladesh (IUB)". It was established in 1993 and is one of the prominent private University of Bangladesh. Its main focus is in Research and global partnerships. There are currently about 5500 students, 9000 alumni and about 250 faculty members of which one fourth of them have PhD's from America.

### **Mission and Strategy:**

- **The Mission:** Our mission is to achieve the goals of higher education and of sustainable economic growth in the country through a two-way relationship between community and university.

- **The Goals:** IUB's goals are to produce graduates of international standards within the local environment, with knowledge and relevant skills to provide leadership in enterprise, public service and welfare; encourage and support useful research; create knowledge; and provide further learning opportunities for adults. The curriculum objectives for the undergraduate education are to teach communicative skills (oral and written communication and computer skills) with a strong humanities background, knowledge and competence in a subject (i.e. a major), and a sub-specialization (minor) in a related subject. This is commensurate with the ultimate goal of equipping students with middle management skills and the background necessary to pursue higher studies.
- **The Strategies:** The University curriculum and courses of study are progressively revised and adjusted on the basis of their relevance to national needs and the global market demand. The educational quality is maintained by exchange relationships with renowned universities overseas.

As a private university, IUB is free to set its own curriculum and methods of procedure and to cooperate with academics at home and abroad. It produces graduates who are well grounded in the liberal arts with marketable skills to promote economic growth.

Its campus is about 3 acres. It has an amphitheater, state-of-the-art laboratories. It also has a well-equipped Library with online access to books and journals. It has above 50 classrooms, lecture galleries, a state-of-the-technology auditorium, gymnasium, food court, playground, medical Centre, counselling office, student dormitory and alumni office. In a nutshell it has a small campus with all the facilities that are needed for the betterment of the students. Recently IUB has bought some side lands and infrastructure to expand its campus. Currently the Expansion of the campus is going on rapidly and we hope to see more students coming to IUB for both academic and research purpose.

The faculty members of IUB are actively engaged in research and publish regularly in peer-reviewed journals. Along with conventional classroom teaching, students are engaged in research relatively early in their studies. IUB has academic research collaborations with various universities including Harvard University, Stanford University, University of Colorado at Boulder, Brown University, McMaster University, University of

Heidelberg, University of South Alabama, Southern Illinois University, University of Vermont, University of Minnesota, Aga Khan University, Institute of Psychiatry in Pakistan, Public Health Foundation of India, and Institute for Research and Development, Sri Lanka.

Our academic curriculum is based on a North American liberal arts model and the medium of instruction is English. We have a vice-chancellor, a pro-vice chancellor, a register, and different heads for different sectors. We currently have six academic schools:

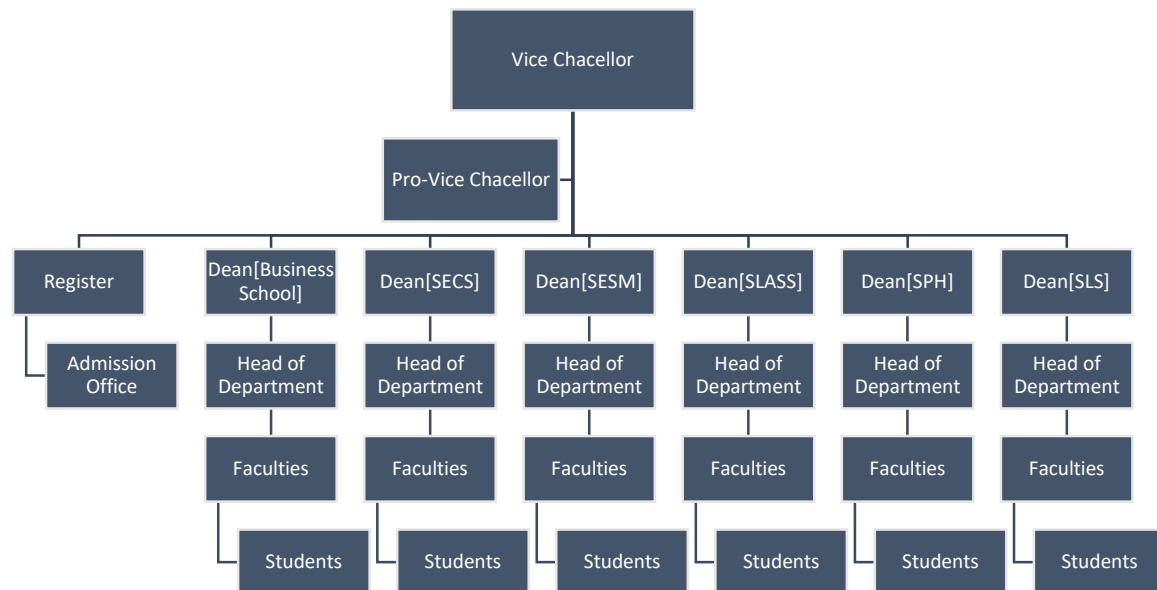
- School of Business
- School of Engineering and Computer Science
- School of Environmental Sciences and Management
- School of Liberal Arts and Social Sciences,
- School of Life Sciences
- School of Public Health.

Every school has a dean and have different Departments. Each Department has a head of department. There are faculties under Head of department in every departments.

Other sectors include:

- Accounting sector
- Admission Department
- Register's office
- DOSA(Division of Student Activity)
- Security System

The organization's overview will be more easily visible if we notice the Organogram below-



### **3. Objective of the Project:**

The main Objective of the project are given below:

1. To computerize student and faculty database.
  2. To maintain data consistency and integrity.
  3. Automate the registration process without any physical human interaction
  4. Making the registration process accessible anywhere to the student.
  5. Allowing faculty to acknowledge registration requests from anywhere.
- With the requirement of registration process for every semester, it becomes all the more important to simplify a process which is highly repetitive
6. The achievement of the above objectives can help the institution in managing the resources efficiently
  7. The automated process will lead to time saving and eradication of common errors

8. The administrator will get easier way to determine the seat of the courses, keep track of the registration module, and generate report for the year to help them determine the development of the courses.

9. This system will also help guardian to know the condition of study of their children through their online sign up.

10. Overall the main objective is to propose and develop an online registration and management system that will facilitate the user as well as the administrator in order to keep the flow of registration more compact and efficient.

## **4. Scope of the Project:**

In this section, we will focus more on the objectives of the project in details and elaborately for better understanding of the project. We identify three main users in the system. Student, Faculties and Guardians. We will focus on the activities they can do through this project in form of objectives.

- **Admission:** Students eager to admit in to IUB will be able to fill up their form online and Get Admission Card.
  - **Filling Online Form:** Applicants will fill up form online with their data and it would be automatically stored in Database.
  - **Enrollment:** After qualifying in the exam they will be able to enroll themselves.
- **Payment:** Admission fee and other fee can be collected via AAA through online.
- **Activity of Student:**
  - **Registration:** Students will be able to register courses for their current semester and there are also some other matters in hand. As the project will provide an online interface to them, they would be able to register, add/drop and retake their courses from clicks away sitting in their time.

- ADD/DROP: Students can add or drop their course according to their need. Adding and dropping courses are updated in real time to avoid the hassle and difficulty of storing data.
- Course Prerequisites: Students can only be able to take courses whose prerequisite course is done. Otherwise the system will avoid the student taking any course whose prerequisite course is not done yet.
- Retake Courses: Students will be able to retake any course for maximum 3 times as per the rules of IUB. The latest grade will be the final grade of that course.
- **Request for Transcript online:** At the end of undergraduate period, student will be able to request for transcript online through this system. This will reduce the hassle in human interactions needed in order to Request for the transcript.
- **Semester Wise Report:** At the end of every semester student would be able to print their semester wise report along with their grade, GPA and CGPA in form of PDF file. Which is very useful in need to evaluate and judge any student. Moreover, in other needs, this report can be helpful.
- **Registration Record:** The system will record and store data of every particular registration done by the students and automate their transcripts automatically. A database is needed for that.
- **Course Record:** There will be record of every course and their corresponding data like- How many students are in that course, course size, semester etc. There will be another database for that.
- **Activities of Faculty**
  - Attendance: In every class, a faculty has to take attendance of the students. This project has the aim to minimize the hassle of taking attendance manually and keeping record. It will store data automatically and will be available for further future decision taking support.
  - Grade Submission: After every semester or exam, a faculty has to evaluate student and grade them according to the performance. This project

aims to automate the system with storing previous exams mark and help grade any student.

- Course Registration as advisor: Sometimes, the students can't register for themselves for either being a fresher who is not familiar of the system or being affected by indecision. In this case advisors can register courses for the student by themselves to eliminate any problem in course registration.
- Email Guardian: In case of bad or good performance, and in case of absence, the faculty will be able to email the corresponding guardian to take necessary action. The faculty can also send email to the corresponding guardian about the absence of the class in real time.

- **Activities of Head of Department**

- Offer Course: In start of every semester, Head of department will be able to offer particular courses that are needed for the students. This project will help the head with course automation and suggest head of department with courses he needs to offer for the most optimized Course offering.
- Attendance time select: The head of department will be select time by which the attendance should be submitted. He can also able to allow some faculty to submit attendance after allotted time in case of exception.
- Faculty Override: Sometimes it becomes necessary to override faculty for the head of department to do any job. Like- Grade resubmission, faculty review etc. The project aims to provide head of department to crown with this powerful override actions.

- **Activities of Guardians**

- See Transcripts of his/her son/daughter: This project will enable the guardians to directly log in to the system and see performance of their son/daughter in real time. All the grades of previous courses and marks of the current courses will be presented to them in a systematic and logical way.



- **Comment on Courses taken in current semester:** If the guardians want, they will also be able to comment of their son/daughter's performance in form of review of different courses which his/her son/daughter has taken in the current semester.
- **Activity of Administrator:** In every system, there is a need for administrators. Software can have bug. There may be new condition set for any subsystem. Sometimes registrations are done manually. In these exceptional cases, administrator has the privilege to having being granted with all permission and access. The Role of the maintenance of the system also bestows upon the Administrator.
  - **Grade Resubmission:** If there is any mistake or exceptions, faculty can request administrator to change grade and admin can manually do that.
  - **Manual Registration:** In case of exception, Admin can do registration for a student manually.
  - **AAA Account Set Up:** New students and faculties would need to contact admin for their AAA account set up.
  - **Maintenance:** Admin is responsible for maintenance of the whole system.
  - **Handle Exceptions:** In case of any emergency situation, or exceptions, Admin will take care of the situation.

The achievement of the above objectives can help the institution in managing the resources efficiently. The automated process will lead to time saving and eradication of common errors.

## **5. Future aspects of the Project:**

There are many other scopes of future development of this system. They can start from including accounting and finance and finish in automated attendances submission with

Student ID cards by scanning with barcode reader. The some important future scopes are described below-

- **Send SMS to Guardian:**

- Notifying of absence of student: When any student is absent in the class, an automated SMS would be sent to the corresponding guardian to notify them which will give them more insights about their son/daughter.
- Notifying about result at the end of the semester: After every semester completion, an automated SMS containing the CGPA and other grades will be sent to parents to notify how their son/daughter is doing in the University in semester basis.
- Notifying about any exceptional event: There can be many exceptional cases while staying inside the university. Like – the student has committed serious crime, the student is ill and there can be accidents. SMS can be sent in such circumstances.
- Notifying about the holidays and sudden change of plan to both guardian and student: If there is any sudden need of closing of and official day or in time of holiday SMSs can be sent to both student and parents about the change of plan.

- **Automated student attendance with scanning their IDs:**

- Scanning their Ids while entering University: Currently there are security issues while entering the university. We don't know how many students entered the university and is there any duplication of ID card. Students will be able to swipe their ID card while entering the University.
- Scanning their Ids for taking attendance: When students enter the classroom, they could swipe their ID cards and their attendance can automatically be given by the system. This process requires changing ID cards capable of that ability in the future.

- **Addition of accounting section:**

- Section for Student fee collection and record: Student semester fee and course fee collection is a huge task that needs to be automated. There

can be an individual section of the system related to collection of student fee collection and record of that.

- Section for faculty Salary and other expenses: University not only receives money from students but also has to give salaries to faculties and other employees in monthly basis. This process could be automated in the future with further development.
- **Addition of financial section:** Fitting all the individual accounting sections in a single independent system to control all flow of money to and from University. It will help trustee board member to assist them in future decision making.
- **Online notice board with notification:** When students log in their accounts there will be section for notice related activities. They can be university specific or department specific. They would not only be able to see the notice they will also get notification when any new notice is given.
- **Future mobile app development:** Here comes the scope of future mobile app development in which all users would be able to log in to their account and conduct all the activities from their mobiles. It would be very convenient as capabilities of Mobile phones are increasing day by day.
- **Issue Complain or suggestion:** Anyone using the system can give feedback of his/her opinion through this system directly to the administrator.
- **Frequently Asked Questions (FAQs):** There will be section for newcomers to the system from which they can learn about the whole system easily and conveniently.

There can be more developments in the future and a lot more scope to develop more advanced system on the basis of this system in the future.

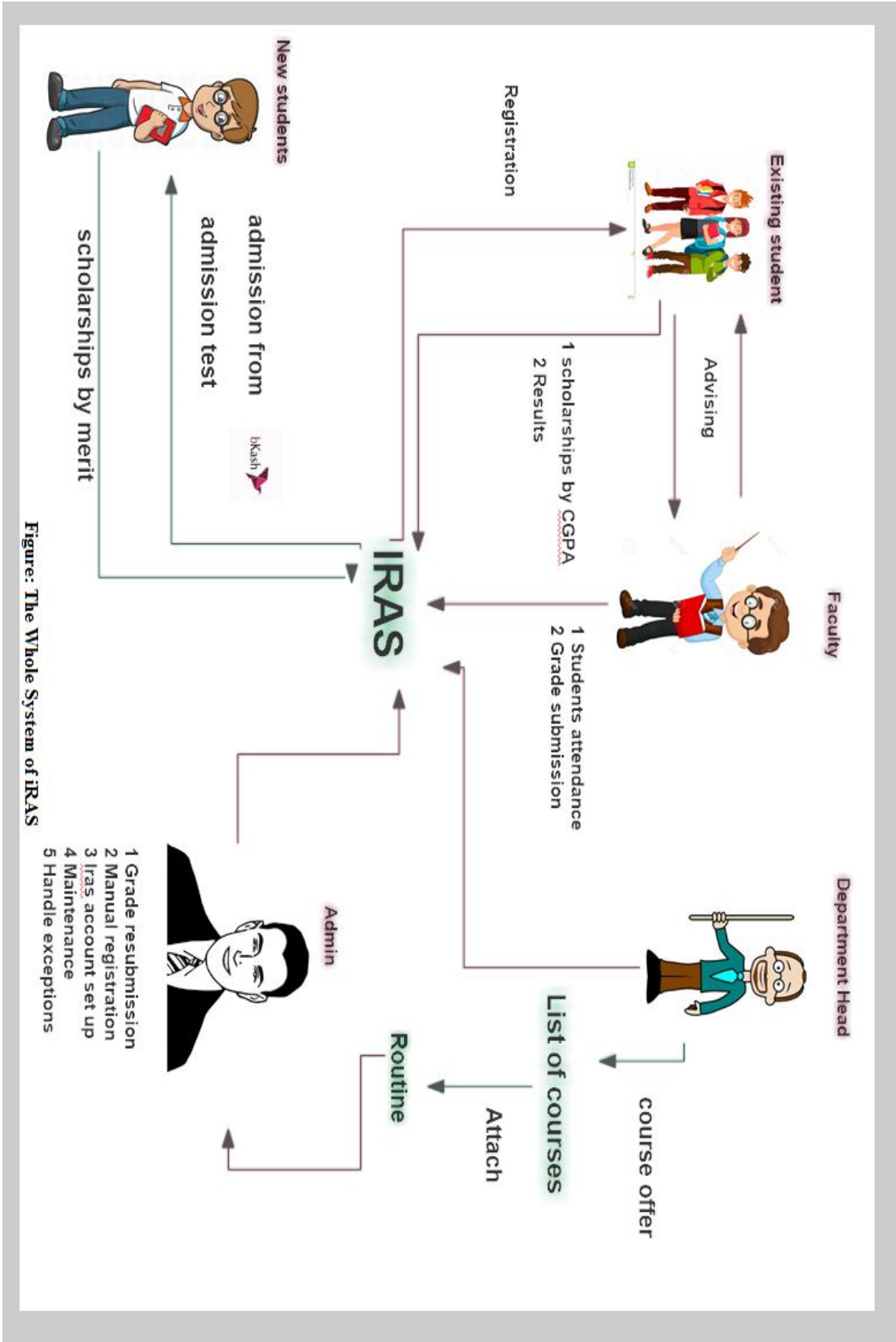
## **6. Existing Business System (With Rich Picture)**

There are numerous activities in an academic institution like a University. There are different schools or departments. Under each school or department, there exists different faculties. There is dean for every schools. There is a Register who is in control for all the student related activity. Register controls the courses offered in all the departments, conducts exam and keep record of students throughout the semesters in every year. The head of departments offer contextual courses in every semester. The students register for courses in every semester.

In start of every new semester the head of department need to evaluate the records of the students to construct a logical offered course in which all the students want to take the particular course otherwise he would not offer that course. In every semester, the students register for their course. This record is also kept. Which student took which courses and which course has which students is a very important information to run a University. The register has to keep record of every course along with the corresponding students and their grades. He also has to keep records of every individual student.

In this complex situation of the University, we can see there are lots of labor and cost in storing various data of various entities. It is more difficult to share or modify data because you have to change it all

In this section of our Report, we are coming with a pictorial representation of our Proposed Business model. Currently IUB is operated with a system called iRAS (Integrated Registrar's Office Automation System). It is a fairly decent system which is easy to understand. For better understanding we insert rich picture here:



## **7. Processes Along with six Sytem elements:**

### **7.1 Subsystem: Admission**

**Table 01: Process and comparison with six system elements:**

Serial No.	Processes	Existing Six System Elements					
		Human	N.C.H	Computatio nal Hardware	Software	Database	Connectivit y
1	Applicant students provide their informatio n via online form	Applicant	-	Any Computer, Smartphon e	iRAS	Form Data	Internet
2	Applicants pay for their Admission fee via Bkash	Applicant	-	Bkash	iRAS	Payment Data	Mobile Network
3	Seat allocation for verified students	Staff organize the seats of examinee	Papers printe d with applic ant name	-	Produce list of examinee	Examine e data	Server Data

			on desks				
4	Applicants get their admit card	applicant	Printable form	Any Computer	iRAS providing Admit card	Examine e data	Internet
5	Exam Paper is set	Faculty		Computer			
6	Students sit for the exam	Students	Pen, Script				
7	Exam scripts are evaluated	Faculty	Pen, Script				
8	Result get published	Applicant		Any Computer	iRAS offers student list for enrollment	Student list on server	Internet
9	Admission committee select list of students for academic scholarships based on result and admission test	Admission committee	List of students	Computer	Gives info to admission office and it inserts into to iRAS	Data Server	Internal System

**Table 02: Problem Analysis**

Processes	Problem	Analysis
Applicant students provide their information via online form.	They might give wrong information	Humans make error all the time. If is anticipated that some applicant might give wrong info and later came to solve that issue.
Applicants get their Admit card	They might face error downloading Admit card from server	It might be a server issue. Many users log in the server at a time and causes problems regarding downloading. Or simply his/her Admit card was not generated.

**Table 03: Solution Analysis**

Problem	Solution	Constraints
Applicant's gave wrong information	They log in with their admission id and change the wrong info to the right one.	Use of Computer, application and data increases.
Applicant's facing error while downloading admit card	The servers are upgraded to face the huge traffic in peak periods of time.	Cost of upgrading servers.

## **7.2 Subsystem: Scholarship**

**Table 01: Process and comparison with six system elements:**

Sl no	Processes	Existing Six System Elements					
		Human	N.C.H	Computational Hardware	Software	Database	Connectivity



1	System collect data of the students who got two golden A+ or Five A's in A level in one sitting	Applicant	-	Any computer	iRAS	Form Data	Internet
2	Document Verification	Applicant, Staff of IUB	Certificates	-	-	-	-
3	Existing students apply for scholarship on merit based	Applicant	Form	-	-	Student academic data from server	Server Connection
4	Based on Scholarship criteria Scholarship committee awards scholarship to the applicants	Committee, Student	List of Students	Given to register's office whice enters to iRAS	iRAS	List of Students	Server Connection
5	Existing students apply for scholarship based on financial need	Student	Form	-	-	Form Data	-
6	Need based applications must be accepted and recommended by related depts. And school	Scholarship board	Form	-	iRAS	Student data saved in Server	Server Connection

7	Based on recommendations, Scholarship committee awards scholarship to the need based applicants	Scholarship board	Form	-	iRAS	Student data saved in Server	Server Connection
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**Table 02: Problem Analysis**

Processes	Problem	Analysis
Apply For Scholarship on merit based system	Students have to manually fill up the form and apply	As there is no automated or online system to apply for scholarship, students have to do it manually.

**Table 03: Solution Analysis**

Problem	Solution	Constraints
Students have to manually fill up the form and apply	It can be an automated system within the online system	A new module would need to be there for granting Scholarships

### **7.3 Subsystem: Advising**

**Table 01: Process and comparison with six system elements:**

Serial No.	Processes	Existing Six System Elements					
		Human	N.C.H	Computational Hardware	Software	Database	Connectivity
1	Students provide their related information to advisor	New students	-	Computer Mobile	iRAS	university Data	Internet
2	Advisor suggest list of courses required by the students based on their course students has completed and 4 years plan	New students	-	Computer Mobile	iRAS	university Data	Internet
3	Discussion on every option are course Schedule	New students	-	-	iRAS	university Data	Server Data

	With all possibility						
4	Based on the discussion students finalize courses to register	New students	-	-	iRAS	university Data	Server Data
5	Advisor provide payment bill to students with course list	New students	Bill paper	-	-	Payment Data	Server Data

**Table 02: Problem Analysis**

Processes	Problem	Analysis
Students provide their related information to advisor	They might provide wrong information	Humans make error all the time. If is anticipated that some applicant might give wrong info and later came to solve that issue.

**Table 03: Solution Analysis**

Problem	Solution	Constraints
Students provide their related information to advisor	We should ensure students give their right information by their birth certificate	national birth records database

## **7.4 Subsystem: Registration**

**Table 01: Process and comparison with six system elements:**

Serial No.	Processes	Existing Six System Elements					
		Human	N.C.H	Computational Hardware	Software	Databas e	Connectivity
1	students login to the system with their student ID and Password	Students		Computer Mobile	iRAS	university Data	Server Data
2	Students go to registration Page for their registration	Students		Computer Mobile	iRAS	university Data	Internet
3	Students Load courses for their registration	Students		Computer Mobile	iRAS	university Data	Server Data
4	Students Select	Students		Computer Mobile	iRAS	university Data	Server Data

	courses for their registration						
5	Students Click registration button after their course selection	Students		Computer Mobile	iRAS	university Data	Internet
6	Students go to report page for their bill paper	Students		Any Computer with internet connection	iRAS	university Data	Internet
7	Students go for bank to pay their bill	Students		Bank		Bank data	Internet

**Table 02: Problem Analysis**

Processes	Problem	Analysis
Students Manually Select courses for their registration	Manually select the Courses.	When a student goes for Registration; he/she has to “Select” the courses they want to be enrolled in. While doing so, he/she has to keep track of 2 things:

		<ul style="list-style-type: none"> <li>• If the desired course has any prerequisite or not.</li> <li>• If the time schedule of the Course clashes with each other or not</li> </ul>
Students Manually Select courses for their registration	Student has to be physically present to do Registration manually.	When a student is unable to do the Registration online he/she has to take appointment with the officials of the Registration department to precede the registration. Most of the time this lead to a long queue in front of the registration office. A student has to be physically present to get the job done.
registration bill	Apply for the transcript through Registration desk.	When a student has completed all the courses that he/she is supposed to do in their Majors, Minors & Foundations; this means they are eligible to apply for the final transcript to the Registration officials. The officials check if the student has completed the required course & if he/she has got the passing grades on those courses or not. This

		rigorous task is done by the officials for every student.
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**Table 03: Solution Analysis**

Problem	Solution	Constraints
Manually select the Courses.	Our system will primarily keep track of those aspects & they will check if the conditions are satisfied or not (AND) .If so, only then it will permit the Student/Advisor to take that course. Otherwise, it will tell the user, to choose another course, & repeat the checking process for those courses in the same manner	Admin
Student has to be physically present to do Registration manually.	Advisor/Student can notify the Administrator about the problem through an e-mail. A file will be attached to the e-mail, which will list the courses that the student prefers to take. Officials will do the Registration job as per required by student.	Admin
Apply for the transcript through Registration desk.	Since we have the record of the Courses and the respective grade they got -	Admin



	<p>which are stored in the database. This data can be used by the system to do the comparisons automatically &amp; tell if a student is eligible to apply for transcript or not. This will reduce the hassles to check manually to a large extent.</p>	
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## **7.5 Subsystem: Attendance**

**Table 01: Process and comparison with six system elements:**

Serial No.	Processes	Existing Six System Elements					
		Human	N. C. H	Computational Hardware	Software	Database	Connectivity
1	Instructor login to the System using the unique login ID & password	Instructor		Computer , Smartphone	iRAS	Login ID Password	Internet
2	Instructor keeps record of the students present in the	Instructor or Students		Computer Smartphone	iRAS	Student's attendance	Internet

	class by giving ticks in appropriate place						
3	Instructor submits the attendance records to the university's Server using the system	Instructor		Computer Smartphone Server	iRAS	Student's attendance	Internet
4	After the Submit button is pressed, the date & the time of Submission is saved in the system	Instructor		Computer Smartphone	iRAS	Date, Time	Internet
5	Instructor can take Manual Attendance if there is high traffic in the system's server or other technical difficulties	Instructor or Students	Paper	Computer Smartphone	iRAS - Attendance is later submitted using iras	Student's Attendance	Internet

**Table 02: Problem Analysis**

Processes	Problem	Analysis
Instructor keeps record of the students present in the class by giving ticks in appropriate place	Guardian's unawareness of Student's Attendance	Due to the unrest going on in the society or other reason, a parent might be eager to know whether their sons/daughters were present in the class or not. Current system does not provide any bridge between the institution & the Guardian, through which a Guardian can be informed about their son's/daughters attendance

**Table 03: Solution Analysis**

Problem	Solution	Constraints
Instructor keeps record of the students present in the class by giving ticks in appropriate place	Our system will have this feature will enable the Guardian to access the records of their respective son/daughter. Guardian can login to the system and monitor the attendance of the student from home.	Storing the records of the Guardian for every students in the Database will become complicated

## **7.6 Subsystem: Grading**

**Table 01: Process and comparison with six system elements:**

Serial No.	Processes	Existing Six System Elements					
		Human	N.C.H	Computational Hardware	Software	Database	Connectivity
1	Instructor provides Grading Scheme	Instructor	Papers	Computer	Microsoft Office, Adobe Reader		Internet needed if Instructor wants to download related files
2	Instructor conduct Test/Exams & Collect Assignment	Instructor	Papers	Computer needed if exams are taken online	A software that can take exams online	Yes (to store online papers)	Internet
3	Instructor calculates marks for- Exams, Assignment & sometime Attendance to calculate grade of students	Instructor	Exam copies. From copies, mark will be recorded	Any Computer	Microsoft Excel	Marks of Quizzes, Midterm & Finals	
4	Instructor gives Grades based on 3	Instructor		Excel File	iRAS	Yes	Internet

5	Grades are provided in the system	Instructor , Student		Any Computer	iRAS	Grades	Internet
6	Student can claim for change in grade if necessary	Controller of Examination, Student, Instructor	Paper-To Apply for Changing Grade	Any Computer	iRAS	Grades	Server Data

**Table 02: Problem Analysis**

Processes	Problem	Analysis
Grades are provided in the system	Guardians cannot monitor Student's Grades	Guardians are unaware of Student's Academic performance. Current system does not provide any bridge between the institution & the Guardian, through which a Guardian can be informed about their son's/ daughters academic excellence.

**Table 03: Solution Analysis**

Problem	Solution	Constraints
Guardians cannot monitor Student's Grades	Our system will have this feature which will enable the Guardian to access the records of their respective son/daughter. Guardian can login to the system and monitor the academic performance of the student	Storing the records of the Guardian for every students in the Database will become complicated

## **7.7 Subsystem: Course Offer**

**Table 01: Process and comparison with six system elements:**

Serial No.	Processes	Existing Six System Elements					
		Human	N.C.H	Computational Hardware	Software	Database	Connectivity
1	Head Of Department along with the Committee decides what courses will be offered in the upcoming semester	Head Of Department, Committee members	Papers	Computer	Microsoft Office	Yes	Internet needed if the members wants to download related files
2	Data of Pre-registration s are used to see if sufficient students are available for a course	Head Of Department, Committee members		Computer	Microsoft Office		
3	Based on 2, the Committee makes a final list of the Courses that will be offered for	Head Of Department, Committee members	Papers	Computer	Microsoft Office	Yes	Internet

	the next semester						
4	List of the courses that will be offered by a Department is recorded/ updated in the iRAS	Head Of Departm ent		Computer	iRAS	System's Database	Internet
5	During Registratio n, a Student is able to take courses that are offered by the Head	Student		Computer, Smartpho ne	iRAS	System's Database	Internet

**Table 02: Problem Analysis**

Processes	Problem	Analysis
Based on 2, the Committee makes a final list of the Courses that will be offered for the next semester	Courses that a Student prefers are not offered	A student may plans to enroll in a particular course in the next semester. It is likely to happen that, those courses are not offered in the upcoming semester. A student has to wait for upcoming semesters till the course is offered .This circumstances create unavoidable hassles for a student.

## **7.8 Subsystem: Course Allocation**

**Table 01: Process and comparison with six system elements:**

Serial No.	Processes	Existing Six System Elements					
		Human	N.C.H	Computational Hardware	Software	Database	Connectivity
1	Teachers Committee & others estimate how many Student can enroll in a particular course	Head Of Department, Committee members	Papers	Computer	Microsoft Office	Yes	Internet needed if the members wants to download related files
2	Based on 1 the Committee members decide how many sections will be opened	Head Of Department, Committee members		Computer	Microsoft Office		
3	Based on 2, the Committee makes a time schedule for every section; keeping in mind that no two sections	Head Of Department, Committee members	Papers	Computer	Microsoft Office	Yes	Internet needed if the members wants to download related files



	have the same time for a day						
4	After the completion of step 3, the Committee decides which faculty will take a particular section; keeping in mind that a faculty does not have any two courses at the same time	Head Of Department, Committee members	Papers	Computer	Microsoft Office	Yes	Internet needed if the members wants to download related files
5	Rooms are allocated for every sections of the course; keeping in mind that a room is allocated for only one course at any time	Head Of Department, Committee members	Papers	Computer	Microsoft Office	Yes	Internet needed if the members wants to download related files

**Table 02: Problem Analysis**

Processes	Problem	Analysis
The Committee makes a time schedule for every section; keeping in mind that no two sections have the same time	Time schedule are allocated in the Manual manner	Time for every sections and course are allocated in the manual manner. This is a tedious process & involves lots of people to work on.
Rooms are allocated for every sections of the course; keeping in mind that a room is allocated for only one course at any time	Rooms are allocated in the Manual manner	Rooms are allocated in the manual manner for every. This is a tedious process & involves lots of people to work on.

**Table 03: Solution Analysis**

Problem	Solution	Constraints
The Committee makes a time schedule for every section; keeping in mind that no two sections have the same time	Instead of doing the time allocation in the manual manner; we can implement an algorithm in our system which will do the allocation using the technique of <b>Backtracking</b>	Difficult to implement the algorithm. This needs an expertise coder
Rooms are allocated for every sections of the course; keeping in mind that a room is allocated for only one course at any time	Instead of doing the room allocation in the manual manner; we can implement an algorithm in our system which will do the allocation using the technique of <b>Backtracking</b>	Difficult to implement the algorithm. This needs an expertise coder

These were the processes and problem and solution analysis of the all subsystems in the iRAS. Analyzing these problems We can design the proposed system with solving problems and analyzing the solution constraints. We've studied these tables and planned

and designed our project AAA for the betterment the whole system. We're trying to come up with more advanced and effiecient solutions

## **8. Proposed Business System (With Rich Picture):**

In this section of our Report, we are coming with a pictorial representation of our Proposed Business model. Here, we are going to introduce how the 6 system elements are interacting with each other & the roles they play within the system. We will try to simplify the proceses of the whole system along with the elements interacting with each other in the system. We want to cover various activities and automation with the project "Automation of Academic Activities". The data storing facilities will be more effective and there will be more versatility in data sharing and extracting meaningful information from it to assist in future decision for the faculties, heads and register. This representation of our business model is for the naïve users who have no knowledge about the technical details or how the computer works. Automation of Academic Activities (AAA) is an online system that is designed to facilitate the activities of an academic institution. It is an automated system that will give services to the Academic Institution communities- Students, Faculties, Staffs and other groups.

Moreover we want to automate the whole academic activity sectors. Like- course registration. Course retake, student attendance, grade submission, review grades, course offering, and controlling centralized exams and so on. The Academic Activity Automation system can be used to maintain the records of students easily. It also provides a less time consuming process for viewing, adding, editing and deleting the marks of the students. Online System Project consists many useful elements: an enhanced Student module for Registration, Edit Profile, View Test history, Change Password. The project provides facilities like online registration and profile creation of students thus reducing paperwork and automating the record generation process in an educational institution. Calculate results, store test results. The academic activity automation System allows students, through Internet, to register, drop, or add courses within the registration period and from this system faculty can take attendance of the students. The System provides for students the option to register courses, without the advisor's prior approval, offered by their schools during the scheduled registration periods. The students can modify their course selection by adding and/or dropping courses.

Here is a rich picture to show the whole system in bird's eye view:

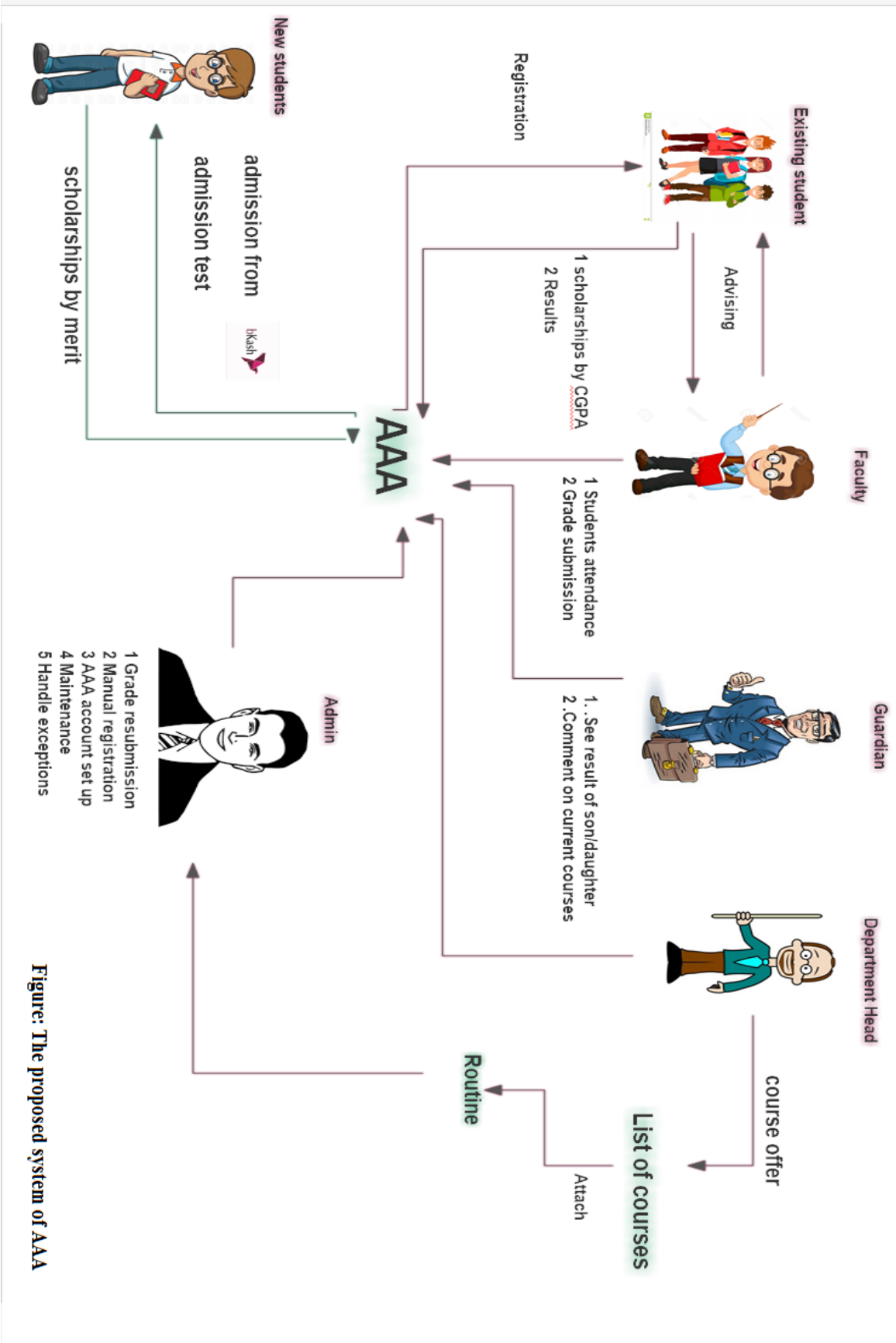


Figure: The proposed system of AAA

## **9. Solution with Existing System Vs Proposed System in handling some Problems:**

Table 1 : System Performance in terms of Six System Elements Analysis with existing and proposed system

Processes	Soution with Existing System						Solution with Proposed System					
	Human	NCH	Com .	Softwar e	Database	Connectivit y	Human	NCH	Com.	Softwar e	Database	Connectivit y
Applicant's gave wrong information	Manual in Office	Special Form	-	-	Form data	-	-	-	Any Computer	AAA	Online correction data	Internet
Apply For Scholarship on merit based system	Manual in Office	Special Form	-	-	Form Data	-	Student	-	Any Computer	AAA	Online Form	Internet
Apply for Transcript	Manual in office	Special Form	-	-	Form Data	-	Student	-	Any Computer	AAA	Online Request	Internet

Guardians cannot monitor Student's Grades	-	-	-	-	-	-	Guardian	-	Any Computer	AAA	Son/Daughter Data	Internet
Guardian's unawareness of Student's Attendance	-	-	-	-	-	-	Guardian	-	Any Computer	AAA	Son/Daughter Data	Internet
Manually select the Courses made automated	Student	Special Form	-	-	Form Data	-	Student	-	Any computer, Smartphone	AAA	Database	Internet
The Committee makes a time schedule for every section; keeping in	Committee	List of Courses	-	-	Data entered through Admission office	-		List of courses	Any Computer	AAA	Database	Internet

mind that no two sections have the same time												
Rooms are allocated for every sections of the course; keeping in mind that a room is allocated for only one course at any time	Committee	List of courses and room	-	-	Data of Course allocation entered in iRAS through register's office	-	-	-	The System Server	AAA	Course List data	Internet