SACRED HEART SCHOOL

Rajiv Nagar, Kharika, Lucknow

A Project Report

On

Computer Institute Management System

For

AISSCE 202 -2 Examination

[As a part of the Informatics Practices Course (065)]

SUBMITTED BY:

1) [Roll No-_____]

Under the Guidance of:

SUNIL SIR

PGT (Comp. Sic)

CERTIFICATE

This is to certify that the Project entitled Computer Institute Management System is a bonafide work done by _____ ___of class XII Session 202 -2 in partial fulfillment of CBSE's AISSCE Examination 2023-24 and has been carried out under my direct supervision and guidance. This report or a similar report on the topic has not been submitted for any other examination and does not form a part of any other course undergone by the candidate.

…… ……..

Signature of Students *Signature of Teacher/Guide*

Name: ***Name: SUNIL SIR***

PGT (Comp.Sc.)

……..……

Signature of Principal

Signature of External Examinar

……

Place:…….

Date:……..

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ACKNOWLEDGEMENT

I undertook this Project work, as the part of my XII-Informatics Practices course.I had tried to apply my best of knowledge and experience, gained during the study and class work experience. However, developing software system is generally a quite complex and time-consuming process. It requires a systematic study, insight vision and professional approach during the design and development. Moreover, the developer always feels the need, the help and good wishes of the people near you, who have considerable experience and idea.

I would like to extend my sincere thanks and gratitude to my teacher Mr. Sunil Sir. I am very much thankful to our Principal Mrs. Indu S. Nair for giving valuable time and moral support to develop this software.

I would like to take the opportunity to extend my sincere thanks and gratitude to my parents for being a source of inspiration and providing time and freedom to develop this software project.

I also feel indebted to my friends for the valuable suggestions during the project work.

_____ *[RollNo-_____]*

Class XII

PROJECT ON COMPUTER INSTITUTE MANAGEMENT SYSTEM

INTRODUCTION

The **Computer Institute Management System** is a software used to register oneself for a course in our **SSA Computer Institute**.

Note :

- Allow the user to input their number, name, desired course
- Allow the administrator to delete an enrollment, edit the name and course of a candidate.
- Allows the user to see the details.

OBJECTIVES OF THE PROJECT

The objective of this project is to let the students apply the programming knowledge into a real- world situation/problem and exposed the students how programming skills helps in developing a good software.

- Write programs utilizing modern software tools.
- Apply object oriented programming principles effectively when developing small to medium sized projects.
- Write effective procedural code to solve small to medium sized problems.
- Students will demonstrate a breadth of knowledge in computer science, as exemplified in the areas of systems, theory and software development.
- Students will demonstrate ability to conduct a research or applied Computer Science project, requiring writing and presentation skills which exemplify scholarly style in computer science.

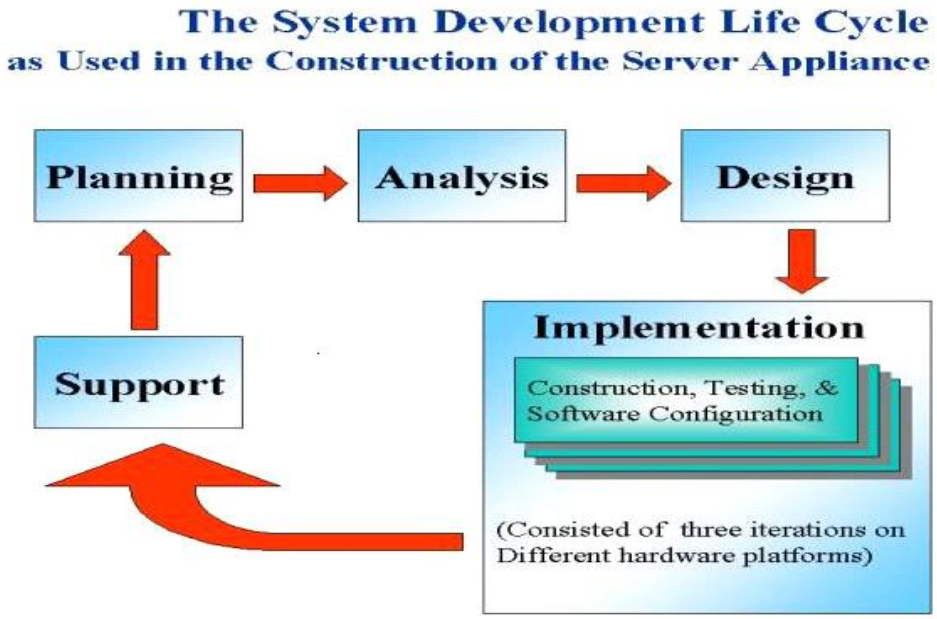
PROPOSED SYSTEM

Today one cannot afford to rely on the fallible human beings of be really wants to stand against today's merciless competition where not to wise saying **"to err is human"** no longer valid, it's outdated to rationalize your mistake. So, to keep pace with time, to bring about the best result without malfunctioning and greater efficiency so to replace the unending heaps of flies with a much sophisticated hard disk of the computer.

One has to use the data management software. Software has been an ascent in atomization various organizations. Many software products working are now in markets, which have helped in making the organizations work easier and efficiently. Data management initially had to maintain a lot of ledgers and a lot of paper work has to be done but now software product on this organization has made their work faster and easier. Now only this software has to be loaded on the computer and work can be done.

This prevents a lot of time and money. The work becomes fully automated and any information regarding the organization can be obtained by clicking the button. Moreover, now it's an age of computers of and automating such an organization gives the better look.

SYSTEM DEVELOPMENT LIFE CYCLE (SDLC)



The systems development life cycle is a project management technique that divides complex projects into smaller, more easily managed segments or phases. Segmenting projects allows managers to verify the successful completion of project phases before allocating resources to subsequent phases.

Software development projects typically include initiation, planning, design, development, testing, implementation, and maintenance phases. However, the phases may be divided differently depending on the organization involved.

For example, initial project activities might be designated as request, requirements-definition, and planning phases, or initiation, concept-development, and planning phases. End users of the system under development should be involved in reviewing the output of each phase to ensure the system is being built to deliver the needed functionality.

PHASES OF SYSTEM DEVELOPMENT LIFE CYCLE

INITIATION PHASE

The Initiation Phase begins when a business sponsor identifies a need or an opportunity.

The purpose of the Initiation Phase is to:

- Identify and validate an opportunity to improve business accomplishments of the organization or a deficiency related to a business need.
- Identify significant assumptions and constraints on solutions to that need.
- Recommend the exploration of alternative concepts and methods to satisfy the need including questioning the need for technology, i.e., will a change in the business process offer a solution?
- Assure executive business and executive technical sponsorship. The Sponsor designates a Project Manager and the business need is documented in a Concept Proposal. The Concept Proposal includes information about the business process and the relationship to the Agency/Organization.
- Infrastructure and the Strategic Plan. A successful Concept Proposal results in a Project Management Charter which outlines the authority of the project manager to begin
  the project.

Careful oversight is required to ensure projects support strategic business objectives and resources are effectively implemented into an organization's enterprise architecture. The initiation phase begins when an opportunity to add, improve, or correct a system is identified and formally requested through the presentation of a business case. The business case should, at a minimum, describe a proposal’s purpose, identify expected benefits, and explain how the proposed system supports one of the organization’s business strategies. The business case should also identify alternative solutions and detail as many informational, functional, and network requirements as possible.

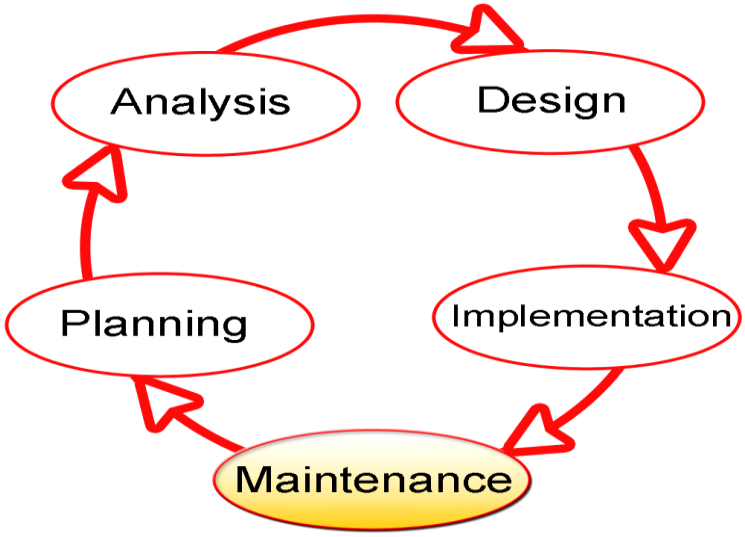
SYSTEM CONCEPT DEVELOPMENT PHASE

The System Concept Development Phase begins after a business need or opportunity is validated by the Agency/Organization Program Leadership and the Agency/Organization CIO.

The purpose of the System Concept Development Phase is to:

- Determine the feasibility and appropriateness of the alternatives.
- Identify system interfaces.
- Identify basic functional and data requirements to satisfy the business need.
- Establish system boundaries; identify goals, objectives, critical success factors, and performance measures.
- Evaluate costs and benefits of alternative approaches to satisfy the basic functional requirements
- Assess project risks
- Identify and initiate risk mitigation actions, andDevelop high-level technical architecture, process models, data models, and a concept of operations. This phase explores potential technical solutions within the context of the business need.
- It may include several trade-off decisions such as the decision to use COTS software products as opposed to developing custom software or reusing software components, or the decision to use an incremental delivery versus a complete, onetime deployment.
- Construction of executable prototypes is encouraged to evaluate technology to support the business process. The System Boundary Document serves as an important reference document to support the Information Technology Project Request (ITPR) process.
- The ITPR must be approved by the State CIO before the project can move forward.

PICTORIAL REPRESENTATION OF SDLC:



PLANNING PHASE

The planning phase is the most critical step in completing development, acquisition, and maintenance projects. Careful planning, particularly in the early stages of a project, is necessary to coordinate activities and manage project risks effectively. The depth and formality of project plans should be commensurate with the characteristics and risks of a given project. Project plans refine the information gathered during the initiation phase by further identifying the specific activities and resources required to complete a project.

A critical part of a project manager' sjob is to coordinate discussions between user, audit, security, design, development, and network personnel to identify and document as many functional, security, and network requirements as possible. During this phase, a plan is developed that documents the approach to be used and includes a discussion of methods, tools, tasks, resources, project schedules, and user input. Personnel assignments, costs, project schedule, and target dates are established.

A Project Management Plan is created with components related to acquisition planning, configuration management planning, quality assurance planning, concept of

operations, system security, verification and validation, and systems engineering management planning.

REQUIREMENTS ANALYSIS PHASE

This phase formally defines the detailed functional user requirements using high-level requirements identified in the Initiation, System Concept, and Planning phases. It also delineates the requirements in terms of data, system performance, security, and maintainability requirements for the system. The requirements are defined in this phase to a level of detail sufficient for systems design to proceed. They need to be measurable, testable, and relate to the business need or opportunity identified in the Initiation Phase. The requirements that will be used to determine acceptance of the system are captured in the Test and Evaluation MasterPlan.

The purposes of this phase are to:

- Further define and refine the functional and data requirements and document them in the Requirements Document,
- Complete business process reengineering of the functions to be supported (i.e., verify what information drives the business process, what information is generated, who generates it, where does the information go, and who processes it),
- Develop detailed data and process models (system inputs, outputs, and the process.
- Develop the test and evaluation requirements that will be used to determine acceptable system performance**.**

DESIGN PHASE

The design phase involves converting the informational, functional, and network requirements identified during the initiation and planning phases into unified design specifications that developers use to scriptprograms during the development phase. Program designs are c onstructed in various ways. Using a top-down approach,

designers first identify and link majorprogram components and interfaces, then expand design layouts as they identify and link smaller subsystems and connections. Using a bottom-up approach, designers first identify and link minor program components and interfaces, then expand design layouts as they identify and link larger systems and connections. Contemporary design techniques often use prototyping tools that build mock-up designs of items such as application screens, database layouts, and system architectures. End users, designers, developers, database managers, and network administrators should review and refine the prototyped designs in an iterative process until they agree on an acceptable design. Audit, security, and quality assurance personnel should be involved in the review and approval process. During this phase, the system is designed to satisfy the functional requirements identified in the previous phase. Since problems in the design phase could be very expensive to solve in the later stage of the software development, a variety of elements are considered in the design to mitigate risk. These include:

- Identifying potential risks and defining mitigating design features.
- Performing a security risk assessment.
- Developing a conversion plan to migrate current data to the new system.
- Determining the operating environment.
- Defining major subsystems and their inputs and outputs.
- Allocating processes to resources.
- Preparing detailed logic specifications for each software module. The result is a draft System Design Document which captures the preliminary design for the system.
- Everything requiring user input or approval is documented and reviewed by the user. Once these documents have been approved by the Agency CIO and Business Sponsor, the final System Design Document is created to serve as the Critical/Detailed Design for the system.
- This document receives a rigorous review byAgency technical and functional representatives to ensure that it satisfies the business requirements. Concurrent with the development of the system design, the Agency Project Manager begins development of the Implementation Plan, Operations and Maintenance Manual, and the Training Plan.

DEVELOPMENT PHASE

The development phase involves converting design specifications into executable programs. Effective development standards include requirements that programmers and other project participants discuss design specifications before programming begins. The procedures help ensure programmers clearly understand program designs and functional requirements. Programmers use various techniques to develop computer programs. The large transaction oriented programs associated with financial institutions have traditionally been developed using procedural programming techniques. Procedural programming involves the line-by-line scripting of logical instructions that are combined to form a program. Effective completion of the previous stages is a key factor in the success of the Development phase. The Development phase consists of:

- Translating the detailed requirements and design into system components.
- Testing individual elements (units) for usability.
- Preparing for integration and testing of the IT system.

INTEGRATION AND TEST PHASE

- Subsystem integration, system, security, and user acceptance testing is conducted during the integration and test phase. The user, with those responsible for quality assurance, validates that the functional requirements, as defined in the functional requirements document, are satisfied by the developed or modified system. OIT Security staff assess the system security and issue a security certification and accreditation prior to installation/implementation.

Multiple levels of testing are performed, including:

- Testing at the development facility by the contractor and possibly supported by end users
- Testing as a deployed system with end users working together with contract personnel
- Operational testing by the end user alone performing all functions. Requirements are traced throughout testing,a final Independent Verification & Validation evaluation is performed and all documentation is reviewedand accepted prior to acceptance of the system.

IMPLEMENTATION PHASE

This phase is initiated after the system has been tested and accepted by the user. In this phase, the system is installed to support the intended business functions. System performance is compared to performance objectives established during the planning phase. Implementation includes user notification, user training, installation of hardware, installation of software onto production computers, and integration of the system into daily work processes. This phase continues until the system is operating in production in accordance with the defined userrequirements.

OPERATIONS AND MAINTENANCE PHASE

The system operation is ongoing. The system is monitored for continued performance in accordance with user requirements and needed system modifications are incorporated. Operations continue as long as the system can be effectively adapted to respond to the organization's needs. When modifications or changes are identified, the system may reenter the planning phase.

The purpose of this phase is to:

- Operate, maintain, and enhance the system.
- Certify that the system can process sensitive information.
- Conduct periodic assessments of the system to ensure the functional requirements continue to be satisfied.
- Determine when the system needs to be modernized, replaced, or retired.

System Design & Development

Database Design

The software project for Computer Institute Management System has one table cand_details

```
mysql> desc cand_details;
+----------------+-------------+------+-----+---------+-------+
| Field          | Type        | Null | Key | Default | Extra |
+----------------+-------------+------+-----+---------+-------+
| adm_no         | int(11)     | NO   | PRI | NULL    |       |
| candidate_name | varchar(50) | YES  |     | NULL    |       |
| course_select  | varchar(20) | YES  |     | NULL    |       |
+----------------+-------------+------+-----+---------+-------+
```

I/O Forms Menu & Coding:

The software project for Computer Institute Management contains various Menu Items along with programming codes.

```
====================== RESTART: C:\Python37\cims_menu.py
Successfully Connected
        SSA Computer Institute Management System

1. Enrolling For A Course
2. Edit Enrollments (as admin)
3. Display Details
4. Exit
```

SOURCE CODES

Create a Python project of a Computer Institute Management System to register yourself into SSA Computer Institute.

Note:

- Allow the user to input their number, name, desired course
- Allow the administrator to delete an enrollment, edit the name and course of a candidate.
- Allows the user to see the details.

SOLUTION:

CIMS_CREATE_DATABASE.PY

```
import mysql.connector as sql
conn=sql.connect(host='localhost',user='root',passwd='sunilsir')
if conn.is_connected():
  print("Successfully Connected")
c1=conn.cursor()
c1.execute('create database cims')
print ('Database created')
```

CIMS_CREATE_TABLES.PY

```
import mysql.connector as sql
conn=sql.connect(host='localhost',user='root',passwd='sunilsir',
database='cims')
if conn.is_connected():
  print("Successfully Connected")
c1=conn.cursor()
c1.execute('create table candidate_details(adm_no int primary
key, candidate_name varchar(50), course_select varchar(20))')
print ('Table created')
```

CIMS MENU.PY

```
import mysql.connector as sql
conn=sql.connect(host='localhost',user='root',passwd='sunilsir',
database='cims')
#if conn.is_connected():
 # print("Successfully Connected")
c1=conn.cursor()
print("     SSA Computer Institute Management System")
print(" ")
print("1. Enrolling For A Course")
print("2. Edit Enrollments (as admin)")
print("3. Display Details")
print("4. Exit")
```

```
choice=int(input("Enter the Choice - "))
if choice==1:
    v_admno=int(input("Enter the Admission Number: "))
    v_candidatename=input("Enter your name : ")
    v_course=input("Enter the Course: ")
    if v_course=='JAVA':
        v_course='JAVA'
    elif v_course=='Python':
        v_course='Python'
    elif v_course=='C':
        v_course='C'
    elif v_course=='BASIC':
        v_course='BASIC'
    elif v_course=='HTML':
        v_course='HTML'

    V_SQL_Insert = "insert into cand_details values (" +
str(v_admno) + ",'" + v_candidatename +"','" + v_course + "')"
    c1.execute(V_SQL_Insert)
    print(" ")
    print("  You are Enrolled Mr.",v_candidatename,".
Congrats!!!")
    conn.commit()
    print(" ")
```

```
    print (" Your enrollment for", v_course ,"course is
successful!")
if choice==2:
    uname=input("Enter Username:")
    passwd=input("Enter Password:")
    u_name='abc'
    pass_wd='123'
    if (uname==u_name) and (passwd==pass_wd):
        print("    Password Accepted")
        print("1. Delete An Enrollment")
        print("2. Edit Name")
        print("3. Edit Course")
        print(" ")
        option=int(input("Which of the above options would you
like to choose ?"))


        if option==1:
            change_adm_no=int(input("Enter the admission number
of the candidate to be removed:"))
            V_SQL_Insert = "delete from cand_details where
adm_no = " + str(change_adm_no)
            c1.execute(V_SQL_Insert)
            print("")
            print("  Successfully removed")
            conn.commit()
```

```
        if option==2:
            change_adm_no=int(input("Enter the admission number
of the candidate whose name is to be changed:"))
            change_name=input("Enter the desired name:")
            V_SQL_Insert = "update cand_details set
candidate_name = '" + change_name + "' where adm_no = " +
str(change_adm_no)
            c1.execute(V_SQL_Insert)
            print("")
            print("  Successfully edited")
            conn.commit()
        if option==3:
            change_adm_no=int(input("Enter the admission number
of the candidate whose course is to be changed:"))
            change_course=input("Enter the Course: ")
            if change_course=='JAVA':
              change_course='JAVA'
            elif change_course=='Python':
                change_course='Python'
            elif change_course=='C':
               change_course='C'
            elif change_course=='BASIC':
               change_course='BASIC'
            elif change_course=='HTML':
                change_course='HTML'
```

```
            V_SQL_Insert = "update cand_details set
course_select = '" + change_course + "' where adm_no = " +
str(change_adm_no)
            c1.execute(V_SQL_Insert)
            print("")
            print("  Successfully modified")
            conn.commit()

    else:
        print("   Wrong Username or Password")


if choice==3:
        c1.execute("Select * from cand_details ")
        data=c1.fetchall()
        for row in data:
            print("   Candidates Details ")
            print("    Admission Number : ", row[0])
            print("    Candidate Name   : ", row[1])
            print("     Course Selected  : ", row[2])
            print(" ")
            print(" ")
if choice==4:
    print('  Thank You ☺')
```

OUTPUTS

```
====================== RESTART: C:\Python37\cims_menu.py
Successfully Connected
        SSA Computer Institute Management System

1. Enrolling For A Course
2. Edit Enrollments (as admin)
3. Display Details
4. Exit
```

If Choice 1:

```
Enter the Choice - 1
Enter the Admission Number: 123
Enter your name : Devraj Singh
Enter the Course: JAVA

                You are Enrolled Mr. Devraj Singh . Congrats!!!

               Your enrollment for JAVA course is successful!
```

If Choice 2:

```
Enter the Choice - 2
Enter Username:abc
Enter Password:123
                    Password Accepted
1. Delete An Enrollment
2. Edit Name
3. Edit Course

Which of the above options would you like to choose ?3
Enter the admission number of the candidate whose course is to be changed:123
Enter the Course: Python

 Successfully modified
```

If Choice 3:

```
Enter the Choice - 3
            Candidates Details
            Admission Number :  123
            Candidate Name   :  Devraj Singh
            Course Selected  :  Python
```

INSTALLATION PROCESS

1. Install “python-3.7.0” in your device (if you do not have Python).
2. Install “My SQL” in your device (if you do not have My SQL).
3. Run the file “cims_create_database.py” in your PC to create a database
4. Run the file “cims_create_table” in your PC to create a table.
5. Run the file “cims_menu.py” in your PC to work on our management system.
6. For further more details on how to use our software, please read “Project - Class 11 - Computer Institute Management System Project”.

HARDWARE AND SOFTWARE REQUIREMENTS

I.OPERATING SYSTEM	:	WINDOWS 7 AND ABOVE
II. PROCESSOR	:	PENTIUM(ANY) OR AMD
		ATHALON(3800+- 4200+ DUAL CORE)
III. MOTHERBOARD	:	1.845 OR 915,995 FOR PENTIUM 0R MSI
		K9MM-V VIA K8M800+8237R PLUS CHIPSET
		FOR AMD ATHALON
IV. RAM	:	512MB+
V. Hard disk	:	SATA 40 GB OR ABOVE
VI. CD/DVD r/w multi drive combo:		(If back up required)
VII. FLOPPY DRIVE 1.44 MB	:	(If Backup required)
VIII. MONITOR 14.1 or 15 -17 inch		
IX. Key board and mouse		
X. Printer	:	(if print is required – [Hard copy]

SOFTWARE REQUIREMENTS:

- Windows OS
- Python

.

8. Bibliography

In order to work on this project titled – Computer Institute Management ***System*** the following Details are referred by me during the various phases of development of the project.

(1) **http://www.mysql.org/**

(2) **http://www.python.org/**

(3) On-line Help of python

(4) Informatics Practices for class XII

-by Sumita Arora

(5) Various Websites of Discussion Forum and software development activities.

Other than the above-mentioned books, the suggestions and supervision of my teacher and my class experience also helped me to develop this software project.