



**THEME: SMART EDUCATION**

**TEAM ID: T088**

**PROJECT: INNOSPHERE**

**TEAM NAME: TIMETABLE SCHEDULER**

Institution : Sant Baba Bhag Singh University





# PROBLEM STATEMENT



Limited infrastructure and faculty availability.



Overlapping departments and effective course schedule.



Manual scheduling leads to

- Class clash-ups.
- Underutilized classrooms.

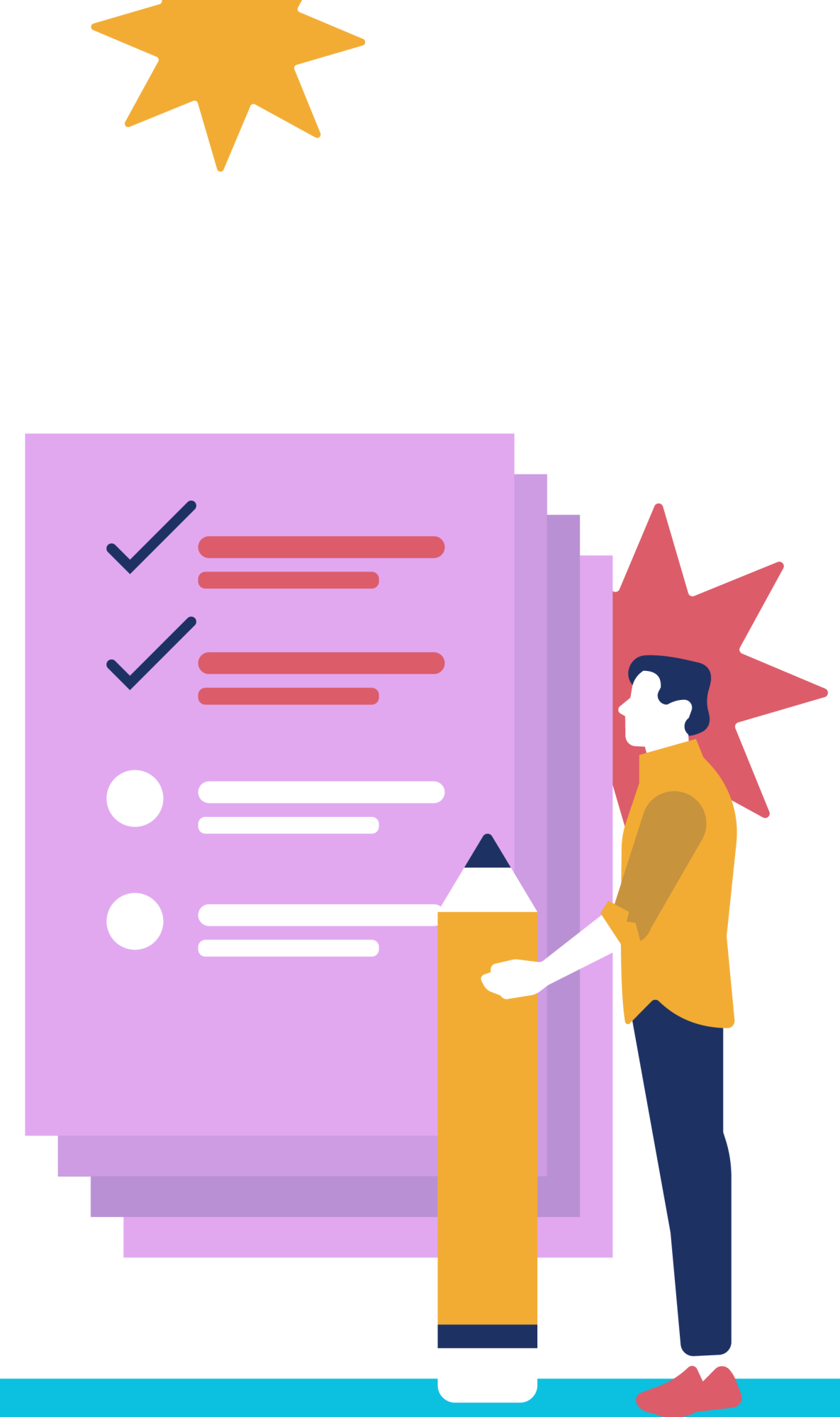


Common pain points in universities.

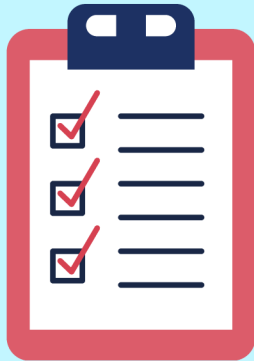
- Time consuming process.
- High risk of human error.

# CHALLENGES IN HIGHER EDUCATION

- 1.** Scarce infrastructure and faculty constraints.
- 2.** Complex course offerings with overlapping departmental requirements.
- 3.** Manual scheduling causes frequent clashes, underutilized resources, and uneven workload.



# PROPOSED SOLUTION: SMART TIMETABLE SCHEDULER



A robust web-based platform integrated with the institution's website.



Secure login for authorized personnel to input and manage scheduling data.



Advanced optimization algorithms to generate multiple clash-free timetable options.



# WHY OUR PLATFORM?



User-friendly interface with  
minimal learning curve.

Scalable and adaptable to  
evolving institutional needs.

Ensures operational  
excellence and supports  
academic innovation.

Future-proof solution for smart  
and digital campuses.



# TECHNICAL APPROACH



1

## FRONTEND:

HTML, Tailwind  
CSS, Next.JS ,  
React Js, dnd-kit

2

## BACKEND:

Next.js API routes  
with Prisma ORM

3

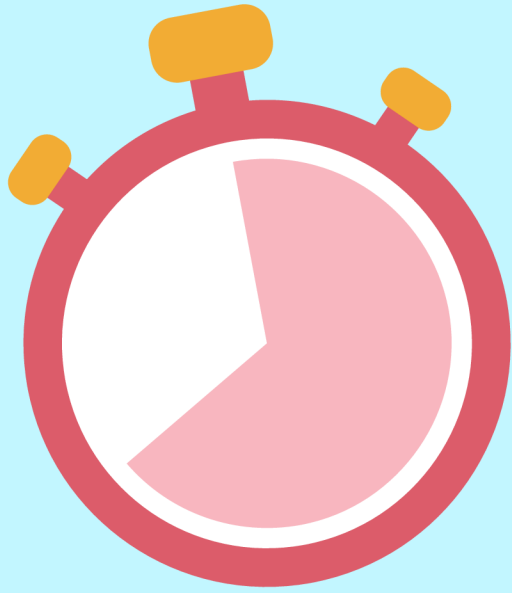
## SCHEDULING ALGORITHM:

Custom  
CSP/heuristic  
generator

4

## DATABASE:

PostgreSQL



# FEATURES



1

- **Role-based Access Control:** Ensures data security and accountability

2

- **Multiple Optimized Timetable Options:** Flexibility to select the best schedule.

3

- **Approval Workflow:** Streamlined review and authorization by academic authorities.

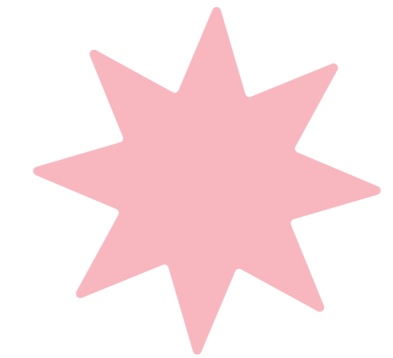
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- **Real-time Updates:** Adapt to changes efficiently without disruption.



# CONCLUSION

Our Smart Timetable Scheduler aims to solve the real challenges faced by higher education institutions — such as faculty constraints, class clashes, underutilized infrastructure, and the complexity introduced by NEP 2020's flexible learning structure.







**THANK YOU**

