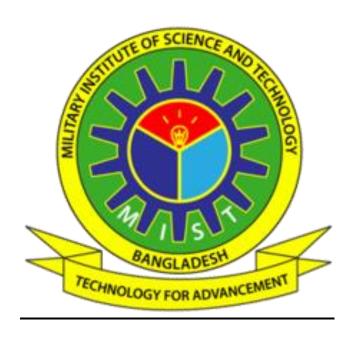# MILITARY INSTITUTE OF SCIENCE AND TECHNOLOGY



# CSE-302

# DBMS SESSIONAL

**GROUP NO:** B8

**Team Members:**
1. Tanvin Sarkar Pallab (202214062)
2. Mehnaj Hridi (202214068)
3. Nazifa Zahin Ifrit (202214076)
4. Yusuf Reza Hasnat (202214112)

## TITLE OF THE PROJECT:

# AUTISM COMPASS

## SHORT DESCRIPTION:

"Autism Compass" is a user-friendly website designed to support individuals with autism and their families. The contents of this website will provide guidance, support, and direction, helping individuals and families affected by autism find their way through various aspects of their journey. It provides valuable information on autism, including personal stories, expert advice, and multimedia resources. Users can find tips for parents, school and NGO resources, and legal rights information. The site also features a quiz for initial screening, a directory of specialists, and options for booking therapy sessions. Additionally, it offers a community forum for sharing experiences, a FAQ section, search functionality, social media integration, and secure data protection. Besides, some other features including an events calendar and a marketplace for autism-related products.

## FEATURES:

1. **User Registration/Login**: Allow users to create accounts and log in to access personalized features.

2. **Information Articles**: Provide articles and resources on autism, its causes, symptoms, and treatments.

a. **Personal Stories**: Share stories and testimonials from individuals and families living with autism.
b. **Multimedia Content**: Include videos, podcasts, and webinars discussing various aspects of autism.
c. **Parenting Tips**: Offer tips and strategies for parents of children with autism.
d. **School Resources**: Provide a list of schools that teach individuals with autism.
e. **NGO Resources**: Provide a list of NGOs working with autistic individuals.
f. **Legal Rights Information**: Educate users about the legal rights and protections for individuals with autism.

3. **Quiz**: to determine the initial presence of elements of autism spectrum disorder.

4. **Expert Directory**: List professionals and specialists in the field of autism for consultations and services.

5. **Therapy and Treatment options**: provide information on autism therapy options and allows users to book sessions in advance.

6. **Chatbot for Communication Skills**: to enhance typing skills and foster social interaction for individuals with autism.

7. **Interactive Assignments**: Teachers guide students with instructional videos for interactive learning and project submission.

8. **Community Forum**: Create a platform for users to discuss and share their experiences with autism.

9. **FAQ Section**: Answer common questions about autism and related topics.

10. **Search Functionality**: Enable users to search for specific information within the database.

11. **Feedback Mechanism**: Gather feedback from users to improve the website and its content over time.

12. **Data Privacy and Security**: Implement measures to protect user data and ensure privacy.

13. **Events Calendar**: Display upcoming events, workshops, and conferences related to autism.

14. **Medicines and toys**: Provide a list of medicines and toys for individuals with autism and add money transaction systems to sell these items.


## POSSIBLE USERS OF THE PROJECT ALONG WITH THEIR ROLES:


### Parents:
Parents play a crucial role in using Autism Compass to support their children with autism. They can explore the website to find practical tips for raising their child, access valuable resources like lists of schools and NGOs, and read personal stories from other families. Additionally, parents can participate in the quiz for initial screening purposes to detect signs of autism early on. They can also learn about their legal rights, connect with other parents through the community forum, and book therapy sessions for their children. Furthermore, parents have the convenience of purchasing toys or medicines for their child from the marketplace section of the website, ensuring they have access to specialized products that cater to their child's needs. By staying informed and utilizing the resources available on Autism Compass, parents can better navigate their child's autism journey and provide the support and care they need.

### Individuals with Autism:
Individuals with autism can use Autism Compass to enroll in various courses designed to aid their development and submit assignments given by their teachers. They can explore personal stories and watch videos, and participate in the community forum through their parents. Additionally, they can benefit from therapy sessions booked by their parents through the website, ensuring they receive comprehensive support and resources for their growth and well-being.

### Health Care Professionals:
Health care professionals use Autism Compass to stay updated on autism research and offer specialized services listed in the expert directory. They provide consultations, therapy options, and valuable insights on treatments. By joining discussions in the community forum, they share expertise and collaborate with other professionals to support individuals with autism effectively.

**<u>Teachers</u>**:

On Autism Compass, teachers assign and review course tasks, ensuring tailored learning experiences for students with autism. They efficiently monitor progress, provide feedback, and track performance to enhance teaching effectiveness.

# <u>INTERVIEW QUESTIONNAIRES</u>:

**For Parents**:

1. How did you get all the resources after the first diagnosis? How will it be beneficial if there is a website now?
2. How much hassle is there to get a therapy appointment? Will you book an appointment online in advance?
3. Will you share your stories with others?
4. Will it be beneficial if you get parental tips from other parent's dealing with autism?
5. Will you be active in the community forum?

**For Teachers**:

1. How to make individuals with autism more independent?
2. What is their learning process?
3. Will you be able to teach them on an online platform?
4. Will you be willing to partner with us for an online therapy booking system?

# PICTURES TAKEN DURING THE SITE VISIT:



Hasina Lucky, Senior teacher of PROYASH



Caregiver and Teacher of PROYASH



Computer Lab teacher of PROYASH



Classroom of PROYASH

# OVERALL FINDINGS FROM THE SITE VISIT:

We visited PROYASH, an Institute of Special Education. There the parents shared that after the first diagnosis, they were overwhelmed and didn't know what to do. A website containing all the information would be very helpful. Booking therapy appointments is currently a hassle, especially for parents of children with autism, as they have to visit the hospital just to make a booking. An online booking system would be very beneficial. Parents also mentioned that sharing stories and communicating with others who have similar experiences would be heartwarming and supportive.

We spoke with a senior teacher there who suggested that teaching children with autism involves using pictures and repetitive practical demonstrations. On an online platform, teachers can post instructional videos, allowing children to learn by watching them multiple times. From observing their classroom, we learned that children are taught typing to improve their communication skills, so we added a chatbot feature for this. We also saw them playing with special toys, so we included a section for purchasing these items.

Lastly, we asked their manager if they would be willing to partner with us for an online therapy booking system, and they agreed.

# LITERATURE REVIEW:

1. **A Web-Based Tutorial for Parents of Young Children with Autism: Results from a Pilot Study [1]:**

   It's a web program that improved parents' understanding of autism interventions. Participants praised the program's accessibility and user-friendly design. These online platforms offer cost-effective intervention training for parents.

2. **Engaging Parents in the Development and Testing of a Website to Support Social-Communication and Play Development for Preschoolers with Autism Spectrum Disorder [2]:**

   Parents found the website useful for targeting social-communication and play skills in their preschoolers with ASD. Specific aspects of the website and intervention were highlighted as effective by parents. Child outcomes and parent fidelity supported perceived developmental gains. Engaging parents in the developmental processes enhanced website usability and applicability.

3. **Coaching Parents of Young Children with Autism in Rural Areas Using Internet-Based Technologies: A Pilot Program [3]:**

   Early intervention plans prioritize family-centered goals based on child and family strengths. Effective interventions include early entry, intensive instruction, structured teaching, family involvement, ongoing assessment, and focus on communication and social skills.

4. **A smart-phone application and a companion website for the improvement of the communication skills of children with autism: clinical rationale, technical development and preliminary results [4]:**

PDA software allows children to choose and combine images for communication. Eliminates need for physical images, managed through computer software. Customizable image selection and combinations on PDA. Software tracks usage and records messages or activities over time

## LIMITATIONS FROM LITERATURE REVIEW AND PROPOSED SOLUTIONS:

Paper [1]:

**1. Limited Generalizability**

Solution: Expand sample diversity and size.

**2.Long-term Effects**

Solution: Conduct longitudinal studies and integrate with existing support systems.

**3.Implementation Challenges**

Solution: Develop comprehensive implementation guidelines and support training programs.

Paper [2]:

**1.Time-consuming Production**

Solution:  Automate printing and laminating processes.

**2.Management Challenges**

Solution: Implement digital solutions for easier card management.

Paper [3]:

**1.Limited Evidence**

Solution: Conduct larger-scale studies to strengthen supporting evidence.

**2. Limited Generalizability**

Solution: Increase sample diversity and representativeness.

Paper [4]:

**1.Potential Bias**

Solution: Incorporate objective measures alongside self-reports.

**2.Self-report Reliance**

Solution: Use mixed-methods for data collection to minimize biases.

**3.Lack Long-term Follow-up**

Solution: Conduct longitudinal studies to assess sustained effectiveness.


# SYSTEM ARCHITECTURE:

While there are several websites dedicated to autism, none encompass the comprehensive range of features we plan to offer. Existing platforms may provide information articles, forums, or therapy directories, but they lack the integrated approach of combining resources, therapy bookings, interactive assignments, chatbots for communication skills, and specialized marketplace features. Therefore, we need to develop our system architecture from scratch to ensure all these elements are seamlessly integrated for user experience.

## POSSIBLE TABLES IN THE PROJECT:


- Person
- Parent
- Child
- Health Professional
- Teacher
- Therapy Organization
- Course
- Log-in
- Delivery
- Bills
- Product


## TOOLS TO BE USED:

**Front end:**

1: HTML & CSS

2: Java Script

**Back End:**

1: Oracle

2: NodeJS

## REFERENCE:

[1] Kobak KA, Stone WL, Wallace E, Warren Z, Swanson A, Robson K. A web-based tutorial for parents of young children with autism: results from a pilot study. Telemed J E Health. 2011 Dec;17(10):804-8. doi: 10.1089/tmj.2011.0060. Epub 2011 Oct 19. PMID: 22011005; PMCID: PMC3228592.

[2] Meadan, Hedda, Lori E. Meyer, Melinda R. Snodgrass, and James W. Halle. "Coaching parents of young children with autism in rural areas using internet-based technologies: A pilot program." Rural Special Education Quarterly 32, no. 3 (2013): 3-10.

[3] De Leo G, Gonzales CH, Battagiri P, Leroy G. A smart-phone application and a companion website for the improvement of the communication skills of children with autism: clinical rationale, technical development and preliminary results. J Med Syst. 2011 Aug;35(4):703-11. doi: [4]10.1007/s10916-009-9407-1. Epub 2010 Feb 2. PMID: 20703781.

[4] Amsbary, Jessica & Lin, Mei-Ling & Savage, Melissa N. & Fanning, Leslie & Reszka, Stephanie & Watson, Linda & Boyd, Brian. (2021). Engaging Parents in the Development and Testing of a Website to Support Social-Communication and Play Development for Preschoolers with Autism Spectrum Disorder. Journal of Special Education Technology. 37. 1-13. 10.1177/01626434211055865