DOUGLASCOLLEGE

CSIS 4495 – 002

(Applied Research Project)

Title: **EcoTots**

(MERN Stack Website for the Exchange of Gently Used kid's Clothing)

Project Proposal

Submitted To:

Prof. Padmapriya Arasanipalai Kandhadai

Team Members:

Lovish Dhanda (Team Lead)

Gurkanwal Singh

Introduction

Parents often face a significant financial burden when purchasing clothes for their children due to the rapid growth of young children, leading to clothes being outgrown within a short time. This creates a cycle of waste, where perfectly usable clothing is discarded, and families, particularly those facing economic challenges, struggle to afford new clothing for their children. The problem is compounded by the environmental impact of textile waste. Addressing this issue requires a platform that facilitates the reuse of gently used children's clothes, providing an affordable solution for families in need.

In this research, we will explore how an online platform can be designed to act as a bridge between parents who wish to sell or donate outgrown children's clothing and families who need affordable clothing options. This project aims to reduce waste, promote sustainability, and alleviate some of the financial burden on parents by offering gently used children's clothes at a fraction of the original cost.

Research Problem

The primary question our research aims to address is:

- How can a website effectively facilitate the exchange of gently used children's clothing, ensuring that families can connect, trust the platform, and engage in meaningful exchanges?
- Additionally, we will explore the financial and environmental impacts of such a platform, aiming to assess its potential benefits in real-world scenarios.
- What features and functionalities should the platform include to ensure an intuitive and user-friendly experience for parents from diverse backgrounds?
- How can the platform incorporate safety and privacy measures to foster trust among users?
- What strategies can be implemented to encourage user participation, such as incentives for donating or selling clothing?
- How can the platform promote sustainability and educate users about the environmental benefits of reusing children's clothing over spending lots of money on new ones?
- How can the platform address logistical challenges, such as shipping, pick-up, or drop-off options, to make exchanges seamless and accessible?
- How can the platform be scaled to reach communities with limited access to affordable children's clothing?
- What marketing strategies can effectively target and attract parents to adopt the platform?
- How can the platform integrate feedback loops to continuously improve its services and adapt to user needs over time?

Literature Review and Knowledge Gaps

Previous research in the areas of sustainable fashion, e-commerce, and online platforms has extensively explored the reuse of goods, particularly in the context of adult clothing and general-purpose online marketplaces. Platforms like eBay and Facebook Marketplace have successfully facilitated the exchange of a wide variety of items, including clothing, rental properties, vehicles, and household goods. However, these platforms are highly generalized, often resulting in cluttered search results and a lack of focus on specific user needs.

While these platforms have demonstrated the viability of peer-to-peer exchanges, their broad scope can interfere with a seamless user experience for parents specifically searching for children's clothing. Issues such as irrelevant categories and the difficulty of finding high-quality, affordable items tailored to children make these generalized platforms less effective for this niche.

Our research aims to fill this gap by designing a specialized platform dedicated exclusively to children's clothing. By eliminating other product categories, we intend to provide a streamlined and focused user experience, ensuring that parents can easily find, sell, or donate gently used children's clothing without unnecessary distractions. Additionally, we aim to address critical concerns highlighted in existing literature, such as building trust, ensuring quality assurance, and creating a secure and user-friendly platform that caters specifically to the needs of families.

Initial Hypotheses and Assumption

We hypothesize that a well-designed platform dedicated to connecting parents and families can significantly alleviate the financial strain associated with children's clothing needs, reduce textile waste, and foster a sense of community through shared resources. Such a platform has the potential to create a circular economy for children's clothing, enabling parents to give new life to outgrown garments while benefiting from affordable alternatives.

We assume that parents are willing to participate in these exchanges provided the platform meets specific expectations. These include an intuitive and user-friendly interface that makes browsing, listing, and purchasing clothes straightforward; secure transactions that ensure privacy and financial safety; and a robust system for quality assurance that builds trust by guaranteeing that the exchanged items meet certain standards.

Additionally, we assume that integrating features such as personalized search options, clear communication channels between users, and incentives for donating or selling clothes can further encourage participation. By addressing these needs, the platform can establish itself as a reliable and valuable resource for families while contributing to broader sustainability goals.

Research Design and Methodology

We will follow a mixed-method approach to design and develop the platform:

- **Design**
  The design phase will focus on creating a user-friendly and visually appealing interface that facilitates smooth communication and interaction between buyers and sellers. This will involve:
    1. **Wireframing and Prototyping**: Initial sketches and digital prototypes will be developed to visualize the platform's layout, navigation, and core functionalities. These prototypes will highlight features such as advanced search filters, user profiles, and transaction histories.
    2. **Competitive Analysis**: A thorough examination of existing platforms, such as eBay and Facebook Marketplace, will be conducted to identify flaws and limitations in current systems, such as the lack of niche focus or cluttered user experiences. These insights will guide the design process, helping us avoid similar pitfalls and create a streamlined platform tailored specifically to children's clothing.

- **Development**
  The development phase will leverage the MERN stack (MongoDB, Express.js, React, Node.js) to build a robust and scalable platform:

    1. **Front-End Development**: Using React, we will create a responsive, dynamic interface with intuitive navigation and user-friendly features.
    2. **Back-End Development**: Express.js and Node.js will be employed to build a secure and efficient server-side architecture, managing user authentication, transactions, and communication between users.
    3. **Database Management**: MongoDB will serve as the database, efficiently storing and retrieving data related to user profiles, clothing listings, and transaction histories.
    4. **Integrations**: Features such as secure payment gateways, real-time messaging, and a quality assurance mechanism will be integrated to enhance the user experience and foster trust.

- **Testing**
  The testing phase will ensure the platform meets user expectations and functions as intended:

    1. **Usability Testing:** To test, we will interact with the platform to identify usability issues, such as navigation difficulties, unclear instructions, or inefficiencies in the search and transaction processes.
    2. **Feedback Collection:** Detailed feedback will be gathered through questionnaires to identify areas for improvement.

3. **Iterative Refinement:** Based on user feedback, we will refine the platform's design and functionality, addressing issues and enhancing features to ensure a seamless and engaging user experience.
4. **Performance and Security Testing:** Rigorous testing will be conducted to ensure the platform is scalable, handles high traffic efficiently, and provides secure transactions to protect user data and privacy.

Data Collection Methods

- Researching the reviews of parents on existing adult clothing websites to understand their needs and concerns.
- User testing and feedback collection from a pilot group of families.

Technologies Used

- **Operating System/Platform**: The platform will be web-based and optimized for all major browsers, with a mobile-first approach.
- **Programming Languages/Frameworks**:
  - Frontend: React
  - Backend: Node.js with Express.js
- **Database**: MongoDB for storing user information, product listings, and transaction data.
- **Frontend and Backend**: React (frontend), Node.js/Express (backend).
- **Agile Approach**: An **Agile approach** will be adopted throughout the project lifecycle to ensure flexibility, collaboration, and iterative improvement.

Expected Results

We envision that the platform will serve as a comprehensive solution to reduce clothing waste by promoting the reuse of gently used children's clothing. By providing affordable options for families in need, the platform will alleviate financial burdens, especially for parents constantly managing the costs of growing children's wardrobes.

Beyond affordability, the platform aims to foster a sense of community among parents, encouraging them to exchange or sell gently used clothing in a secure and supportive environment. This will not only strengthen social connections but also create a culture of sustainability and mutual support.

The platform will be designed with user-friendly features, ensuring a seamless experience for all users, whether they are buying, selling, or donating. By integrating secure payment systems and easy navigation, parents will be empowered to participate without any hassle, making sustainable practices more accessible.

Ultimately, we anticipate that this solution will have a dual positive impact: financially, by enabling families to save money, and environmentally, by reducing the volume of clothing waste that ends up in landfills. As the platform grows, it has the potential to reshape consumer habits, encourage eco-friendly choices, and contribute to a more sustainable future.

Milestones:

1. **Week 1-2**: Research and finalize platform requirements; develop wireframes and initial design.
2. **Week 3-4**: Set up the development environment; begin front-end and back-end development.
3. **Week 5-6**: Integrate the front-end and back-end; test initial features with pilot users.
4. **Week 7-8**: Implement feedback and final design changes; conduct final round of testing.
5. **Week 9**: Launch beta version of the platform and gather final user feedback.
6. **Week 10**: Final adjustments and project submission.

Project Contract

A formal contract will be established to clearly outline the scope of work, project timeline, deliverables, and the responsibilities of both team members involved. This contract will serve as a mutual agreement, ensuring that each team member fully understands their role and commitments throughout the project. It will also provide a framework for accountability and help prevent misunderstandings or misaligned expectations.

As part of the agreement, both team members will commit to a regular schedule of meetings to discuss progress, address challenges, and plan upcoming tasks. These meetings can be conducted online, utilizing virtual conferencing tools to ensure convenience and accessibility, or held as offline meetups at Douglas College campus to facilitate in-person collaboration.

Additionally, a clear communication strategy will be defined, including preferred channels (such as email, messaging apps, or project management tools) and response times to maintain efficient and effective communication. This structured approach will ensure that progress remains on track, any issues are promptly addressed, and the project objectives are achieved successfully.

A clear record of progress will be maintained to ensure the contribution of each team member.

Signatures:

Lovish Dhanda

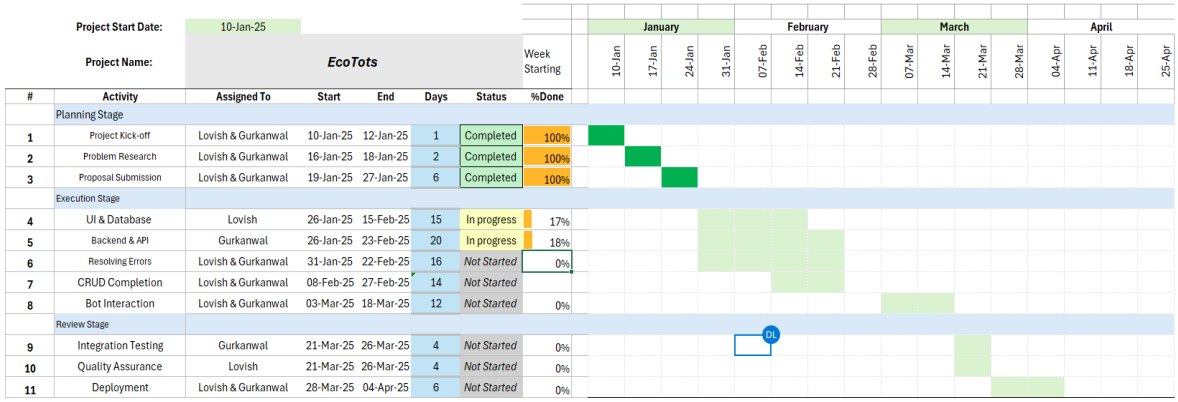
Gurkanwal Singh

Project Management Chart: A Gantt chart will be used to visualize the timeline, milestones, and responsibilities.

We have attached link for the Gantt chart that will be updated as the tasks will be accomplished.

CSIS4495-002_GanttChart.xlsx

Project Planning and Timeline



Project Start Date:	10-Jan-25						
Project Name:	*EcoTots*						

#	Activity	Assigned To	Start	End	Days	Status	%Done
	Planning Stage						
1	Project Kick-off	Lovish & Gurkanwal	10-Jan-25	12-Jan-25	1	Completed	100%
2	Problem Research	Lovish & Gurkanwal	16-Jan-25	18-Jan-25	2	Completed	100%
3	Proposal Submission	Lovish & Gurkanwal	19-Jan-25	27-Jan-25	6	Completed	100%
	Execution Stage						
4	UI & Database	Lovish	26-Jan-25	15-Feb-25	15	In progress	17%
5	Backend & API	Gurkanwal	26-Jan-25	23-Feb-25	20	In progress	18%
6	Resolving Errors	Lovish & Gurkanwal	31-Jan-25	22-Feb-25	16	Not Started	0%
7	CRUD Completion	Lovish & Gurkanwal	08-Feb-25	27-Feb-25	14	Not Started	
8	Bot Interaction	Lovish & Gurkanwal	03-Mar-25	18-Mar-25	12	Not Started	0%
	Review Stage						
9	Integration Testing	Gurkanwal	21-Mar-25	26-Mar-25	4	Not Started	0%
10	Quality Assurance	Lovish	21-Mar-25	26-Mar-25	4	Not Started	0%
11	Deployment	Lovish & Gurkanwal	28-Mar-25	04-Apr-25	6	Not Started	0%

Project Kick-off: Initial meeting to discuss goals, deliverables, timelines, and roles.

Problem Research: In-depth research phase to analyze the problem, understand customer needs, and review competitive solutions.

Proposal Submission: Preparing and submitting the proposal with research findings and solutions.

UI & Database: Design and implement the user interface and set up the database structure.

Backend & API: Develop the backend infrastructure, including necessary API endpoints.

Resolving Errors: Address any issues or bugs that arise during development.

CRUD Completion: Complete the Create, Read, Update, and Delete functionalities for the application.

Bot Interaction: Implement and test chatbot interactions if the project involves a bot.

Integration Testing: Conduct tests to ensure that all parts of the system work together seamlessly.

Quality Assurance: Perform QA checks to verify that the project meets the required standards and specifications.

Deployment: Deploy the project to production or the appropriate environment.

Work Date/Hours Logs

Gurkanwal:

Date	Number of Hours	Description of work done
Jan 24, 2025	1	Introduction
Jan 25, 2025	3	Research Problem, Design
Jan 25, 2025	2	Project Plan

Lovish:

Date	Number of Hours	Description of work done
Jan 21, 2025	2.5	made gantt chart
Jan 23, 2025	3	Added new tasks and timelines
Jan 25, 2025	2	Initialisation and setup of the project

References:

1. **https://www.shopify.com/ca/ppc/sell/sell-clothes?utm_medium=cpc&utm_source=yabing&jk=sell%20clothes&utm_source=yabing&utm_medium=cpc&utm_campaign=Paid%20Search%20-%20Bing%20-%20Canada%20-%20Sell%20-%20English&bingadgroupid=1229254252823652&bingadid=768285484476727&bingkeywordid=76828595627874&bingnetwork=o&BOID=none&msclkid=2929f910969711f3abf89e87a09703d6**
2. **https://ca.shein.com/pdsearch/Baby%20Boy%20Clothes/?ici=s1`SuggestionSearch`Baby%20Boy%20Clothes`_fb`d0`PageRiskCrawlerBlock&search_source=2&search_type=all&source=association&src_identifier=st%3D4%60sc%3DBaby%20Boy%20Clothes%60sr%3D0%60ps%3D2&src_identifier_pr**

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3. https://www.save.ca/online-second-hand-marketplaces-for-canadian-shoppers/
4. https://ultimatethrifting.com/buy-sell-preowned-clothes-canada/
5. https://chatgpt.com/ **(For grammatical errors)**