

NATIONAL



The logo for the National STEAM Olympiad. It features the word "NATIONAL" in large, bold, black capital letters. Below it, the word "STEAM" is represented by five colored squares: an orange square with a white 'S' and a small cluster of red and grey dots; a green square with a white 'T' and a small cluster of green and white dots; an orange square with a white 'E'; a red square with a white 'A'; and a purple square with a white compass and straightedge. Below these squares, a horizontal line extends from the left, ending under the word "OLYMPIAD" which is in bold, grey capital letters.

OLYMPIAD

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Project Title:

Smart with Money: a web app for personal finance management of students

Introduction:

After starting university, overjoyed with finding new friends, a student spent most of their money on treating those friends to food, and now they have no money left for the rest of the month. They can feel the importance of proper budgeting and personal finance management at that moment. This scenario is far from being uncommon, underscoring the vital need for personal finance management awareness among students. This project introduces the “Smart with Money” web application, born out of similar personal experience, to make students less intimidated by the thought of monthly budgeting and managing their personal finances. With a user-friendly and easy-to-understand interface and personalized intuitive suggestions, “Smart with Money” seeks to make students smart with their money management through practical technology usage. This project dives into the development and features of “Smart with Money,” which has taken up the challenge of equipping students with a proper digital budgeting tool.

Problem Statement:

Having financial responsibility for the first time, many college and university students get overwhelmed by dealing with outdated spreadsheets and complex tracking methods with a lack of real-time visibility and make poor financial decisions. This creates poor financial habits and a lack of awareness of personal finance and hinders them from achieving their long-term financial goals. According to a survey conducted by NFEC in 2020, around 54% of US college students expressed concern about their ability to manage their finances after graduation. The “Smart with Money” app aims to empower students to overcome these challenges and make informed financial choices aligned with their aspirations.

Methodology:

- **Project Goals:**

This project aims to develop the “Smart with Money” app. This intuitive and user-friendly web application empowers students to effortlessly create, manage, and monitor their monthly budgets with digitization. By offering personalized recommendations and accessible financial tracking, the app aims to help students take control of their finances, make informed spending decisions, and achieve their short-term and long-term financial goals.

- **Project Scope:**

The scope of the “Smart with Money” app project includes the design, development, and deployment of a student-friendly web app that will provide them with features such as expense tracking, money management, budget creation, and personalized

recommendations. The app will have a user-friendly interface and be accessible to users, especially students with varying levels of financial literacy. However, the project scope does not include third-party integrations, including bank account connections, advanced investment tracking, or payment processing functionality.

- **Code:**

```
class Expense:
    def __init__(self, name, category, amount) -> None:
        self.name = name
        self.category = category
        self.amount = amount
    def __repr__(self):
        return f"Expense: \nname: {self.name} \ncategory: {self.category}
\namount in tk: {self.amount:.2f}"

from expense import Expense

def main():
    print("Let's get ready to be Smart with Money! ")
    expense_file_path = "expense_list.csv"
    budget = 10000

    #get user input
    expense = input_expense()

    #write to csv
    save_expense_to_file(expense, expense_file_path)
    #read file and summarize
    summarize_expense(expense_file_path, budget)

def input_expense():
    print(f"Getting user expense")
    expense_name = input("Enter expense name: ")
    expense_amount = float(input("Enter expense amount: "))

    expense_categories = [
        "Housing(rent or hostel)",
        "Utilities(electricity, water, internet)",
        "Food(groceries, eating out)",
        "Transportation",
```

```

        "Medical Expenses",
        "Textbook and school supplies",
        "Entertainment and Social Activities",
        "Personal expenses(clothing, toiletries, etc.)",
        "Miscellaneous",
        "Savings",
    ]

    while True:
        print("Select a category: ")
        for i, category_name in enumerate(expense_categories):
            print(f" {i+1}. {category_name}")

        value_range = f"[1 - {len(expense_categories)}]"
        selected_index = int(input(f"Enter a category number {value_range}: ")) - 1

        if selected_index in range(len(expense_categories)):
            selected_category = expense_categories[selected_index]
            new_expense = Expense(name=expense_name, category=selected_category,
amount=expense_amount)
            return new_expense
        else:
            print("Invalid Input.\nPlease try again!")

def save_expense_to_file(expense: Expense, expense_file_path):
    print(f"Saving expense {expense} to {expense_file_path}")
    with open(expense_file_path, "a") as f:
        f.write(f"{expense.name}, {expense.category}, {expense.amount}\n")

def summarize_expense(expense_file_path, budget):
    print(f"summarizing your expenses ")

    category_percentages = {
        "Housing(rent or hostel)": 30,
        "Utilities(electricity, water, internet)": 10,
        "Food(groceries, eating out)": 15,
        "Transportation": 15,
        "Medical Expenses": 5,
        "Textbook and school supplies": 5,
        "Entertainment and Social Activities": 5,
        "Personal expenses(clothing, toiletries, etc.)": 5,
        "Miscellaneous": 10,
        "Savings": 10,
    }

```

```

expenses: list[Expense] = []
with open(expense_file_path, "r") as f:
    lines = f.readlines()
    for line in lines:
        expense_name, expense_amount, expense_category =
line.strip().split(",")
        line_expense = Expense(
            name=expense_name, amount=float(expense_amount),
category=expense_category,
        )
        expenses.append(line_expense)

amount_by_category = {}
for expense in expenses:
    key = expense.category
    if key in amount_by_category:
        amount_by_category[key] += expense.amount
    else:
        amount_by_category[key] = expense.amount

print("Expenses By Category: ")
for category, percentage in category_percentages.items():
    if category in amount_by_category:
        amount = amount_by_category[category]
        print(f" {category}: tk {amount:.2f} ({(amount / budget *
100):.2f}%)")
        if (amount / budget * 100) > percentage:
            print(f"    Warning: You've exceeded the allocated percentage for
{category}!")

total_spent = sum([expense.amount for expense in expenses])
print(f"Total Spent: tk {total_spent:.2f}")

remaining_budget = budget - total_spent
print(f"Budget Remaining: tk {remaining_budget:.2f}")

if remaining_budget < 0:
    print("You've exceeded your budget!")

if __name__ == "__main__":
    main()

```

Conclusion:

In conclusion, the development and implementation of the “Smart with Money” app can be a significant milestone in the realm of personal finance management for students. This project began with the vision of providing students with such an empowering tool that would enable them to take control of their finances. Today, I can proudly affirm that the “Smart with Money” app has emerged as a possible solution to this age-old problem. By offering personalized recommendations and accessible financial tracking, the app equips students with the knowledge and tools to make informed financial decisions, reduce chances of present and future debt, and work toward their financial aspirations. Throughout the journey of building this app, I have faced many challenges, but these hurdles have given me invaluable lessons in problem-solving and improved my technological prowess. With continuous improvements and enhancements, such as the inclusion of machine learning, this app can truly become an indispensable companion on each student's financial journey. To conclude, I believe that “Smart with Money” has the potential to redefine how students approach personal finance and shape a future where financial well-being is within every student’s reach.