PROJECT MANAGEMENT

FOOD VENDING MACHINES IN SDU SONDERBORG

Report

Joel Von Rotz
Naadiah Bte Mohamed Ibrahim
Pavils Kobenkins
Vanessa Hammerschmidt

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1. Project Charter

a. Purpose

The intent of this project is to provide food (sandwiches), snacks (tidbits) and drinks to students in SDU when the cafeteria is closed.

Students often have afternoon classes, during which they sometimes would like to purchase foods to snack on on their breaks. However, with the cafeteria not open, there is no opportunity to purchase any food.

b. Scope

Vending machines are to be deployed around the university that dispenses food and drinks. This would supplement the services of the cafeteria and provide opportunities for food purchase when the cafeteria is closed.

Only sandwiches/tidbits and drinks are provided in the vending machines, not full meals like the cafeteria serves. The project is thus not a replacement to the cafeteria.

c. Success Criteria

The idea must be proposed to SDU and they must be convinced to come on board this project since they will be the main source of funding. Labour for stock-taking, inventory and maintenance of the machine will be needed.
A single vending machine per level will be installed next to the elevator rand thus, there will be a total of 4 vending machines. A vending machine franchise company must be engaged and the details with regards to the hardware and software of the vending machines must be discussed and decided upon - the software system it uses, the payment method it deploys etc.

To measure the success criteria, a poll/survey will be distributed among students to analyse the before and after effects of the implementation of the vending machine; to provide the opportunity for a point of comparison. The time at which the vending machine is most used will also be analysed to verify if our assumption that students are in need of food during afternoon classes is valid.

d. Milestones

The project will begin on the 1st of September and is expected to be completed by the 27th of September.

The key milestones and their respective timelines are as follows:

1. Poll before autumn break; to be distributed to the student body by the 6th of September
2. Gaining approval from university by the 23rd of September
3. Acquisition and installation of vending machines by the 20th of October
4. Make and finalise an advertisement and marketing campaign for the vending machines by the 23rd of October
5. Poll after autumn break; to be distributed to the student body by the 23rd of October

Refer to actions for the means of measuring each milestone.

e. Actions

Milestone 1: **Poll Prior to Project Implementation**

1. Poll prior to project implementation
2. Creation of poll
3. Distribution of surveys to the student population
4. Analysis of the date collected from this poll

Milestone 2: Get Permission from SDU

1. Analysis of data collected from the poll to present to the university
2. Write Proposal with details of project, cost breakdown and desired after effects
3. Present proposal to the university

Milestone 3: Acquisition of vending machines

1. Contact several vending machine suppliers for their price list, machine models, software system used, menu options
2. Conduct cost analysis across the different companies
3. Decide on delivery schedule with the company (how often the delivery for restocks must be made per week)
4. Decide which company to engage and make the purchase
5. Keep in constant contact with the company to ensure that the vending machines are delivered according to the deadline
6. Install the vending machines in the different locations across the schools

Milestone 4: Advertising of the vending machines

1. Create signs and posters advertising the new vending machines
2. Post on SDU social media about the new vending machines
3. First week have a discount (5%)

Milestone 5: Poll Post Project Implementation

1. Poll after the project implementation
2. Creation of poll
3. Distribution of surveys to the student population
4. Analysis of the data collected from this poll

f. Team

The team consist of Joel, Naadiah, Pavils, Vanessa and their respective roles are as follows:

Joel – Sales and marketing
Naadiah – Point of communication with relevant companies
Pavils – Finance manager
Vanessa – Project manager

g. Stakeholders

The stakeholders of this project are the students of SDU, SDU, Cafeteria.

The students of SDU are the direct users of the vending machines and thus hold a significant stake in the success of the project. SDU is profit bearing from this project.

The cafeteria is a stakeholder as it is a competitor to the vending machines, albeit indirect.

h. Users

Students of SDU and SDU will benefit from this project.

i. Resources

The resources needed for the project are as follows:

1. Polls for before and after the project
2. Proposal and presentation for the university
3. Contract for the vending machine from the company
    a. Acquisition of 4 Vending machines
    b. Deciding on the contract details for the hardware and software for each machine
4. Finances:
    a. $24000: One time Payment for hardware for 4 vending machines
    b. $650: Annual subscription fees for maintenance and software
    c. $2000: Price for delivery and installation of all vending machines
5. Space per level for vending machines
6. Material for advertisement campaign
7. Time: 1st of September – 27th of October
8. Monitoring customer behaviour and usage of vending machine

j. Constraints

Some of the limitations of the project are as follows:

1. Space constraints in placing the vending machine near elevators
2. Approval is not granted by SDU
3. Software failure of the vending machine
4. Food/drinks not arriving on time for replenishment
5. Expiration dates of food/drinks in the vending machines (given they are perishables)

k. Risks

Some risks associated with the project are as follows:

1. Expiration dates of food/drinks
2. Under utilisation of vending machines; project itself is not well received after implementation
3. Software malfunction
4. Improper dispensing of purchased items
5. Insufficient poll results to conduct a fair analysis

The method to mitigate these risks:

1. Expiration dates of food/drinks
    a. Sell these products at reduced price
2. Insufficient poll results to conduct a fair analysis:
    a. Free snacks for poll participants
3. Software malfunction & Improper dispensing of purchased items:

    a. Liaise with company first and if still no improvements, change vendor
4. Under utilisation of vending machines; Project itself is not well received after implementation
    a. Reduce costs of items, conduct a poll to see which items student would like sold
    b. Reduce the number of machines

2. Project Integration and Scope Management

a. Project Integration Management

This project follows the classical model, since the project goal is known and what needs to be done to achieve it.

Points indicating this model :

- A project manager is responsible for overall coordination and decision-making.
- Detailed planning, strict adherence to deadlines and focus on minimising risks

Priorities of Project Trade-offs

Constrain (Time)	
Priority	Action to manage
Planning the schedule	● Establishing the correct sequence and monitor the duration of each task ● Estimating the length of time required for each activity ● Tracking how closely the project follows the original plan throughout the work. ● Use a Gantt chart to visualise the project schedule
Identifying and defining all activities that must occur throughout the project	● Obtaining permission to install vending machines ● Decide on the type of vending machine and its capacity
Allocate resources for the project	● Use a resource schedule to allocate resources appropriately.

Enhance (Cost)	
Priority	Action to manage
Pricing strategy (Budget plan)	● Ensuring that advertising is the expected increase in customers. ● Multiple price ranges. ● First week 10% discount on products.
Customer experience	● Discounts ● Works 24/7 ● Selection of products in various categories (Vegan, vegetarian etc.) .
Quality of the product	● Experiment with selection of products ● Potential plans to invest in a higher tech vending machine ● Regulate the expiration date
Operational efficiency	● Potential plans to increase payment modes ● Optimise the software for the vending machine ● Define the sections for each category of the products

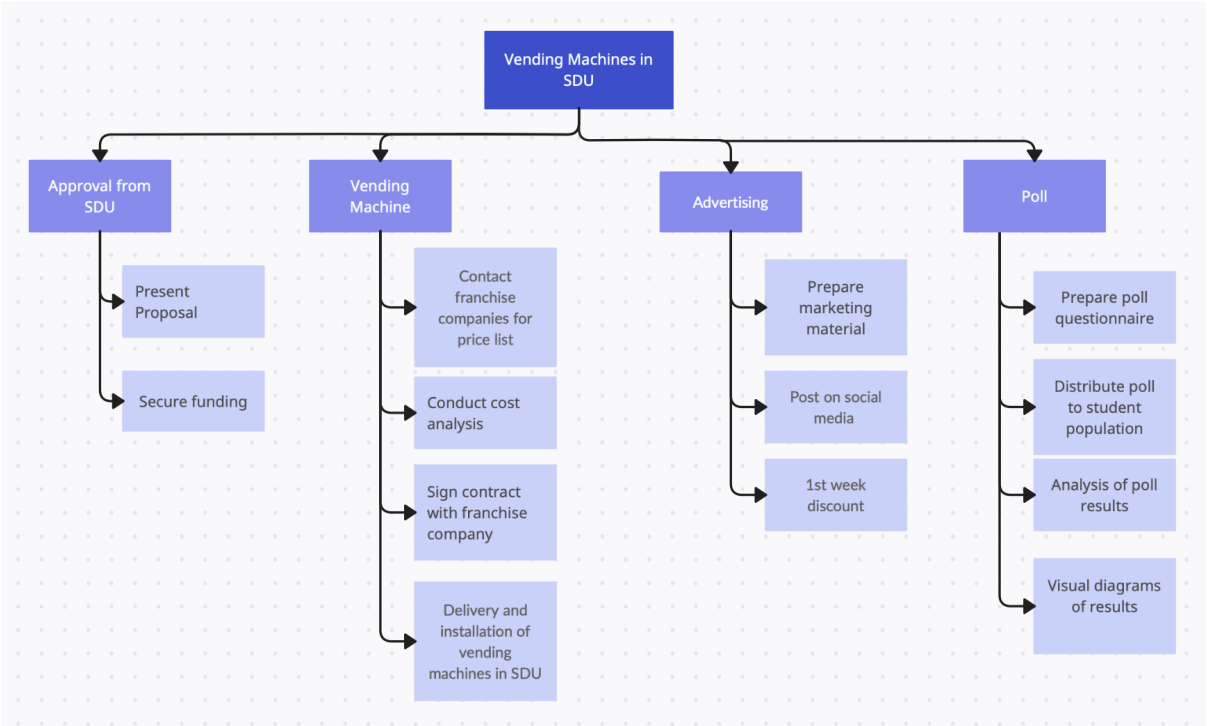
Accept (Scope/Performance)	
Priority	Action to manage
Sales	● Discounts ● Reduce the number of machines ● Reduce available selection of products
Time of the day with most sales	● Change variety of products ● Increase price
Price	● Reduce price if considered too expensive by students
Products selection	● Be inclusive considering the culture diversity ● Focus on snacks and quick sandwiches ● Vegan/vegetarian options

b. Project Scope Management

Scope

To ensure the success of the project, a detailed and elaborate project scope statement and a project scope is needed. The project scope defines what the project is about, what results we expect , what should be done, costs and deadlines. A project's scope statement is the documentation to help keep track of what the project involves by managing each one's responsibilities and how finished work will be verified and consequently, approved.

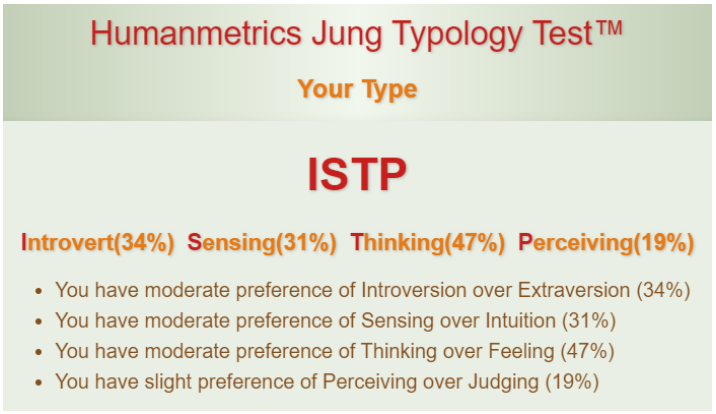
Work Breakdown Structure



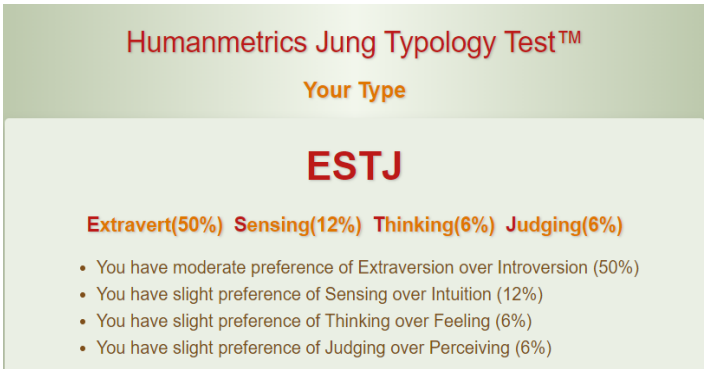
3. Project Resource Management

a. MBTI

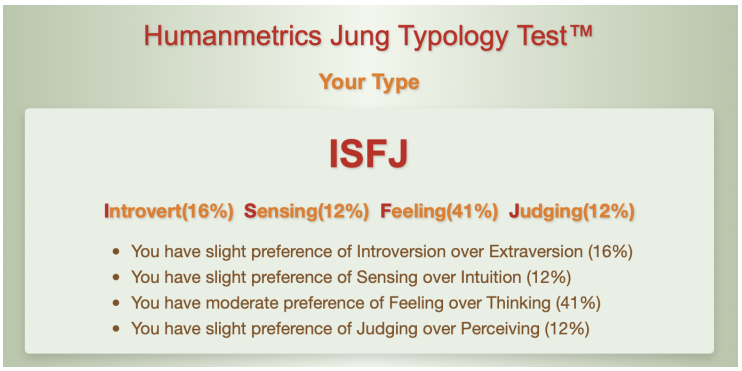
Vanessa:



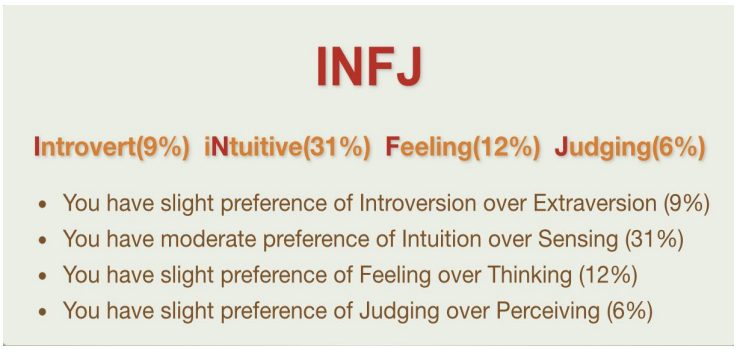
Pavils:



Naadiah:

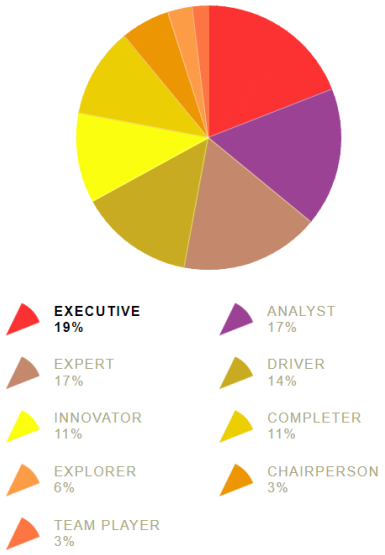


Joel:

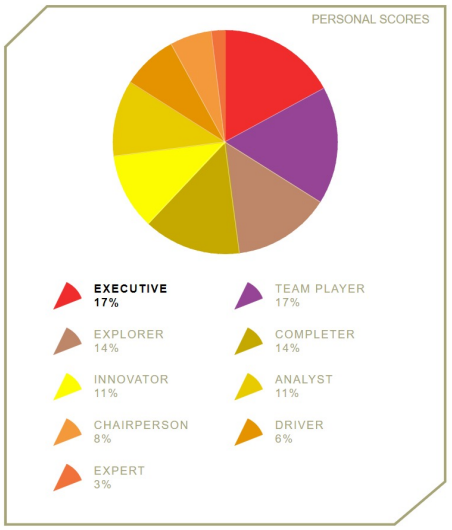


b. Belbin

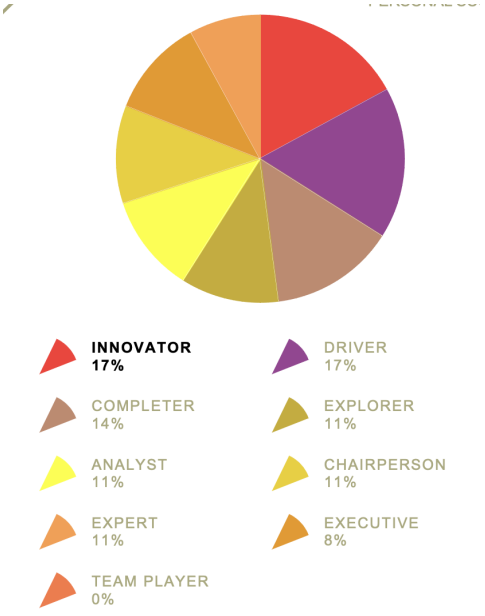
Vanessa



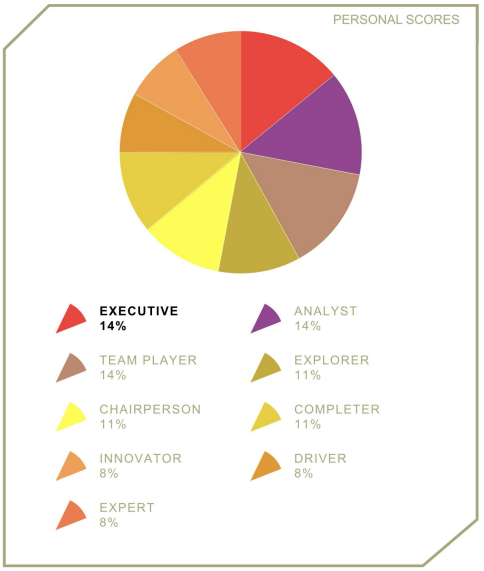
Pavils



Naadiah



Joel



c. Knowing Yourself - Improvements

The quality lacking in the team is being a team player and to manage this, tasks must be clearly delegated to everyone and have frequent check ins to ensure that everyone is up to tasks accordingly.

d. Describe the Team

i. Where is it strong
Executive. Everyone has relatively good leadership skills, meaning that tasks can be delegated well to ensure each individual has a certain aspect of the project to oversee and ensure it runs smoothly.

ii. Where is it weak
Team player. There may be conflicts arriving due to clash of interests amongst members and measures must be taken to mitigate any such situation.

iii. What to do about the weak spots
Team player: Clearly delegate tasks to everyone and have frequent check ins to ensure that everyone is up to tasks accordingly.

4. Project Cost Management

a. Cost

PURCHASE	COST (USD)
Price for delivery and installation of all vending machine	2000
One time payment for hardware for 4 vending machines	24000
Annual subscription fees for maintenance and software	$650

Total expected initial investment is thus USD 26500.

b. Future Expected Cash Flows

We believe that a fair estimation of the average revenue per day will be USD 300 per day from all 4 machines, and we also understand that the revenue will depend on the day.

Using this estimation, the expected cash inflow from the first year is $80 700.

(Note: In obtaining the value for the first year cash inflow, only working days were used in our calculation. That is, sales from saturday and sunday were neglected as we expect them to be negligible.)

(Note: At the end of the semester, revenue is expected to be greater since more students will be at the university for their projects and at this time, the cafeteria will be closed.)

c. Payback

$$\frac{Total\ Costs}{Income\ per\ day} = \frac{\$26650}{\$300/day} \approx 90\ days$$

Break even point occurs 90 days (approximately 23 Feb 2024) after the official start day (23 Oct 2023) of the usage of vending machines

d. NPV

Required Rate of Return = 10%
Time Horizon = 1 year

Using Microsoft Excel to obtain the NPV,
NPV = $99 864

Discount Rate	10%
Initial Investment	$26,500
Year 1	$80,700
NPV	$99,863.64

e. IRR

Required Rate of Return = 10%
Time Horizon = 1 Year

Using Microsoft Excel to obtain the IRR,
IRR = $46 863

Since IRR > 0, the project is profitable.

Discount Rate	10%
Initial Investment	$26,500
Year 1	$80,700
IRR	$46,863.00

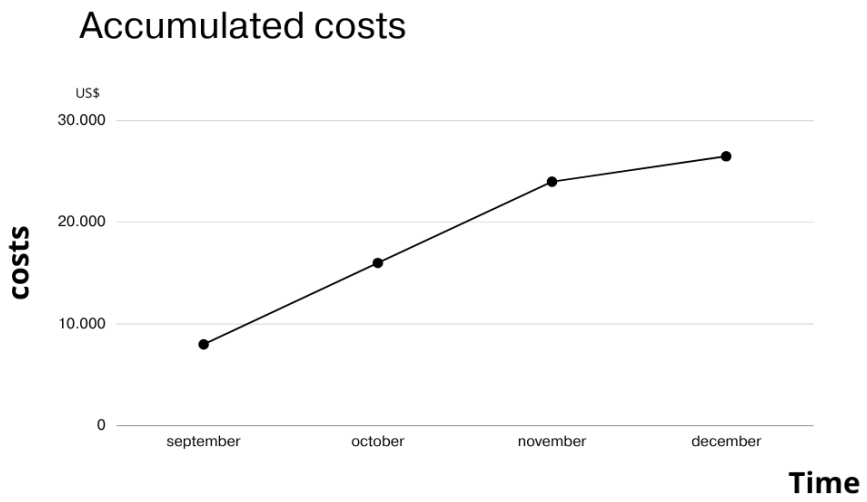
f. Intangible Benefits

- Productivity of students
    - Students save time by not needing to go to the closest supermarket or the cafeteria
    - Students have a choice whenever they feel hungry to buy something. (Vending machines operate 24/7)

g. Project Budget

The budget for the project will be USD 26500.

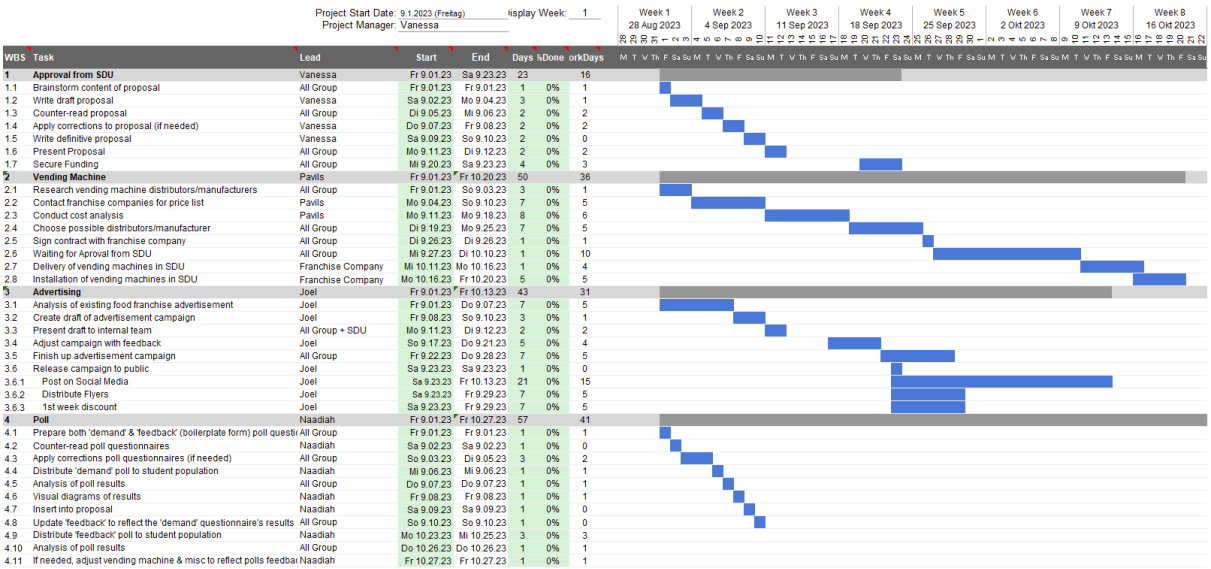
The curve for the accumulated project costs in the total duration of the project is as follows:



5. Project Schedule and Risk Management

a. Gantt Chart

Vending Machines in SDU - Project Schedule



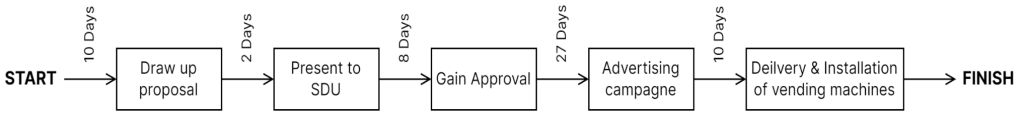
Project Start Date: 9.1.2023 (Freitag) Display Week: 1
Project Manager: Vanessa

WBS	Task	Lead	Start	End	Days	%Done	ork Days
1	**Approval from SDU**	Vanessa	Fr 9.01.23	Sa 9.23.23	23		16
1.1	Brainstorm content of proposal	All Group	Fr 9.01.23	Fr 9.01.23	1	0%	1
1.2	Write draft proposal	Vanessa	Sa 9.02.23	Mo 9.04.23	3	0%	1
1.3	Counter-read proposal	All Group	Di 9.05.23	Mi 9.06.23	2	0%	2
1.4	Apply corrections to proposal (if needed)	Vanessa	Do 9.07.23	Fr 9.08.23	2	0%	2
1.5	Write definitive proposal	Vanessa	Sa 9.09.23	So 9.10.23	2	0%	0
1.6	Present Proposal	All Group	Mo 9.11.23	Di 9.12.23	2	0%	2
1.7	Secure Funding	All Group	Mi 9.20.23	Sa 9.23.23	4	0%	3
2	**Vending Machine**	Pavils	Fr 9.01.23	Fr 10.20.23	50		36
2.1	Research vending machine distributors/manufacturers	All Group	Fr 9.01.23	So 9.03.23	3	0%	1
2.2	Contact franchise companies for price list	Pavils	Mo 9.04.23	So 9.10.23	7	0%	5
2.3	Conduct cost analysis	Pavils	Mo 9.11.23	Mo 9.18.23	8	0%	6
2.4	Choose possible distributors/manufacturer	All Group	Di 9.19.23	Mo 9.25.23	7	0%	5
2.5	Sign contract with franchise company	All Group	Di 9.26.23	Di 9.26.23	1	0%	1
2.6	Waiting for Aproval from SDU	All Group	Mi 9.27.23	Di 10.10.23	1	0%	10
2.7	Delivery of vending machines in SDU	Franchise Company	Mi 10.11.23	Mo 10.16.23	1	0%	4
2.8	Installation of vending machines in SDU	Franchise Company	Mo 10.16.23	Fr 10.20.23	5	0%	5
3	**Advertising**	Joel	Fr 9.01.23	Fr 10.13.23	43		31
3.1	Analysis of existing food franchise advertisement	Joel	Fr 9.01.23	Do 9.07.23	7	0%	5
3.2	Create draft of advertisement campaign	Joel	Fr 9.08.23	So 9.10.23	3	0%	1
3.3	Present draft to internal team	All Group + SDU	Mo 9.11.23	Di 9.12.23	2	0%	2
3.4	Adjust campaign with feedback	Joel	So 9.17.23	Do 9.21.23	5	0%	4
3.5	Finish up advertisement campaign	All Group	Fr 9.22.23	Do 9.28.23	7	0%	5
3.6	Release campaign to public	Joel	Sa 9.23.23	Sa 9.23.23	1	0%	0
3.6.1	Post on Social Media	Joel	Sa 9.23.23	Fr 10.13.23	21	0%	15
3.6.2	Distribute Flyers	Joel	Sa 9.23.23	Fr 9.29.23	7	0%	5
3.6.3	1st week discount	Joel	Sa 9.23.23	Fr 9.29.23	7	0%	5
4	**Poll**	Naadiah	Fr 9.01.23	Fr 10.27.23	57		41
4.1	Prepare both 'demand' & 'feedback' (boilerplate form) poll questi	All Group	Fr 9.01.23	Fr 9.01.23	1	0%	1
4.2	Counter-read poll questionnaires	Naadiah	Sa 9.02.23	Sa 9.02.23	1	0%	0
4.3	Apply corrections poll questionnaires (if needed)	All Group	So 9.03.23	Di 9.05.23	3	0%	2
4.4	Distribute 'demand' poll to student population	Naadiah	Mi 9.06.23	Mi 9.06.23	1	0%	1
4.5	Analysis of poll results	All Group	Do 9.07.23	Do 9.07.23	1	0%	1
4.6	Visual diagrams of results	Naadiah	Fr 9.08.23	Fr 9.08.23	1	0%	1
4.7	Insert into proposal	Naadiah	Sa 9.09.23	Sa 9.09.23	1	0%	0
4.8	Update 'feedback' to reflect the 'demand' questionnaire's results	All Group	So 9.10.23	So 9.10.23	1	0%	0
4.9	Distribute 'feedback' poll to student population	Naadiah	Mo 10.23.23	Mi 10.25.23	3	0%	3
4.10	Analysis of poll results	All Group	Do 10.26.23	Do 10.26.23	1	0%	1
4.11	If needed, adjust vending machine & misc to reflect polls feedba	Naadiah	Fr 10.27.23	Fr 10.27.23	1	0%	1

The full gantt chart can be viewed at the following link:
https://docs.google.com/spreadsheets/d/1FPKXOe0MUlsLOoDu5S0QQGJzQIMyene7WOIW_1Aj_LA/edit?usp=drive_link

b. Critical Path

Given that the progress of the project is very much chronologically related, with one task needing to be completed before the next can begin, there is only one available path, which would thus be the critical path. The start date would thus be the 1st of September 2023 and the end date would be the 29th of October 2023. (Total: 57 days).

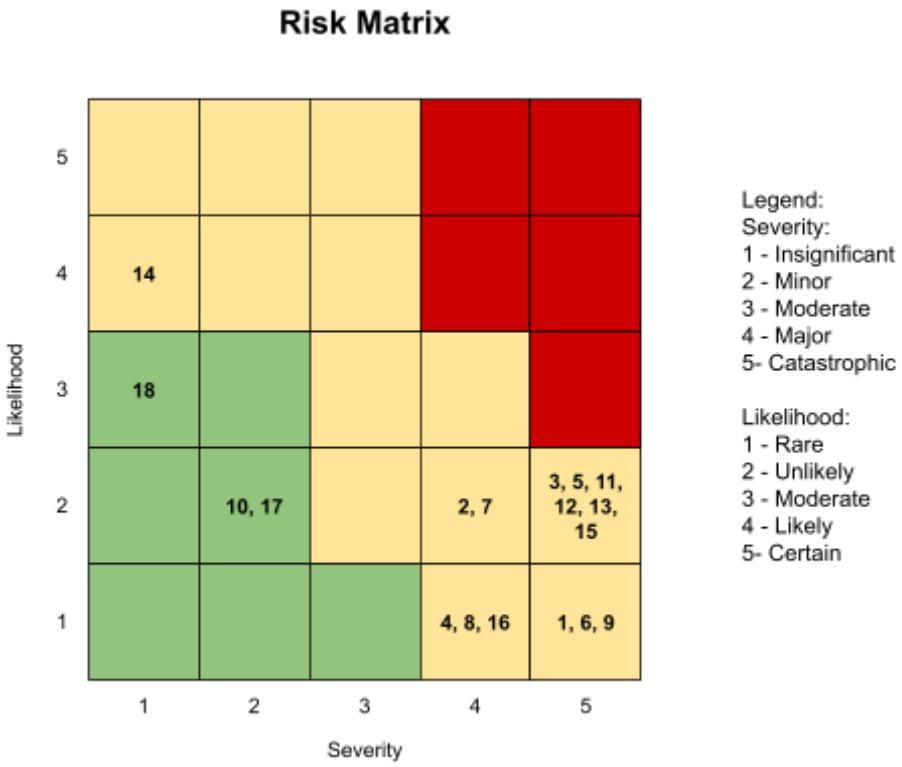


c. Project Risk Management

	Risk Identification	Risk Assessment		Risk Response Development
		Severity	Likelihood	
1	Not gaining approval from SDU	5	1	Request for feedback and present another proposal based on the feedback.
2	Funding from SDU is insufficient	4	2	Construct a detailed cost-budget analysis and proposal and ensure that there are weekly meetings to honor the cost proposal.
3	Unable to secure a franchise company	5	2	Ensure sufficient research is done and multiple franchise companies are identified.

4	Unable to source for a suitable sized machine	4	1	Clearly detail to the franchise company the necessary specifications of vending machines needed.
5	Late delivery of machine	5	2	Ensure constant communication with franchise company, especially days leading up to delivery.
6	Improper installation of machine	5	1	Ensure at least one team member is present during installation and runs a thorough check post installation with the installation team.
7	Software problems with machine (interface malfunction, payment issues)	4	2	Ensure at least one team member is present during installation and runs a thorough check post installation with the installation team.
8	Hardware problems with the machines (damaged while en route)	4	1	Ensure at least one team member is present during installation and runs a thorough check post installation with the installation team.
9	Replenishment schedule of vending machine items not adhered by	5	1	Contact franchise company immediately to communicate the issue and expedite the process of delivering whatever necessary.
10	Improper dispensing of purchased items (Item gets stucked etc)	2	2	Compensate the customers, contact the supplier and identify problems, create a refund policy .
11	Bad quality ingredients and food	5	2	Change suppliers.
12	Short shelf life of food	5	2	Reduce the size of the order, make sure the older products are sold first.
13	Contaminated food items	5	2	Change supplier, compensate the customers.
14	Improper usage of vending machine	4	1	Install cameras and make sure the customers are aware of how a machine should be used.
15	Injuries resulting from improper usage (jammed finger etc.)	5	2	User manual of do’s and don'ts while using the vending machine to be shown on the vending machine itself.
16	Marketing campaign not well received	4	1	Identify the reasons and develop a stronger and more assertive marketing campaign.
17	Poor response rate from poll	2	2	Conduct an analysis on what improvements to be made to make the project more desirable.
18	Negative feedback from the Poll	3	1	Terminate the project.

d. Risk Matrix

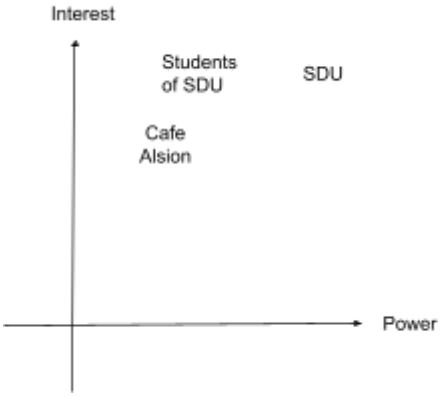


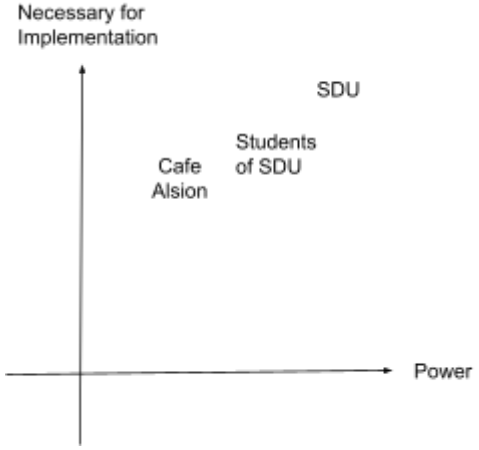
6. Project Communication and Stakeholder Management

a. Communication Plan

MEETING	PURPOSE	PARTICIPANTS	FREQUENCY	QUALITY MEASUREMENT
Weekly meeting	Share the project development, progress and results	All team members	Every monday at 10 am	A link will be offered at the end of the meeting so people can evaluate the meeting saying what we should keep and what we should change for next meetings and people will be asked to grade it from 1-10 being 1 not satisfied and 10 satisfied and a reason for the grade
Project showcase	Share the work done with the rest of the group	All team members	On the 5th day of every month	The project manager will measure from 1 to 10 the quality of the meeting based on participants' engagement , quality of ideas and depth of discussion and if the environment is great in terms of respect
Round table discussions	Share ideas, suggestions and concerns regarding project improvement	Everybody in the project and stakeholders involved.	Every 3 months on a day to be scheduled	All team members and stakeholders to be up to date with results of project thus far and plan of action for the remainder of the project to be granted approval by all parties involved.
Workshops	Promote skill development, new ideas and sharing knowledge	All team members	As the opportunity arises	The participants of the workshop will receive a link by the email to evaluate the meeting and grade it from 1 to 10 being 1 not useful and 10 very useful and they will be asked suggestions for improving
Brainstorm-ing sessions	Generate new ideas	All team members	Every 2 weeks on a wednesday at 2 pm	All team members to be aware of the necessary actions each of them is to undertake to realise the decisions made during the meeting.

b. Project Stakeholder Management





Stakeholder Analysis		Project: Vending Machines in SDU			28 Oct 2023
Stakeholder	Expectation/Success Criteria	Contribution	Power	Need of attention	For/Against
Management of SDU	Return of investment/ Higher sales when cafeteria is closed	Approval of project, funding and Budget for the project	Highest Power among the 3 of them	High Need	FOR
Student of SDU	More snacks options and sandwiches when the cafeteria is closed and also it is closer to the classrooms	Poll results are needed to supplement the need for this project in the proposal presented to SDU	Medium power among the 3 of them	Moderate Need	FOR
Cafe Alsion	Sales will not be negatively impacted	Fear of competitor may cause them to oppose the project, influencing SDU's decision-making process	Lowest power among the 3 of them	High need	FOR