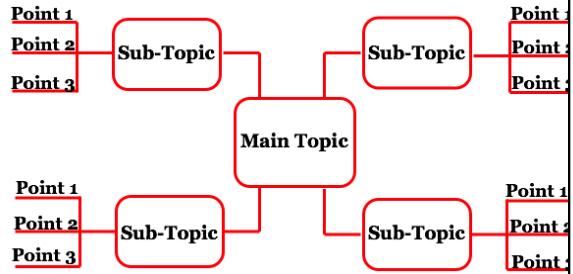
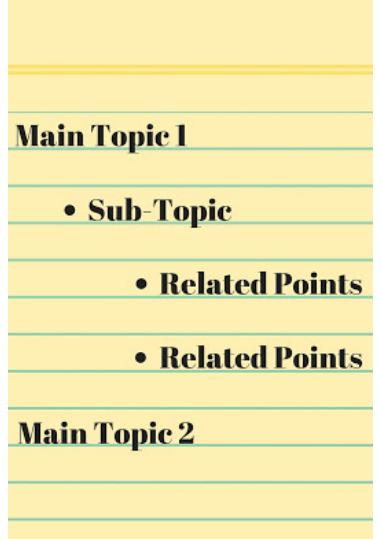


Bootcamp 2 - Overview

Online Corporate Skills Sessions

Week 1	Date	Presenter	Topics Discussed	Takeaways
Day 1	15/05/23	Kunisha Reddy	The 6 methods of taking notes - Outline Method, Cornell Method, Flow Notes Method, Sentences Method, Charting Method, Boxing Method	The session provided valuable insights into diverse approaches for capturing information. I learned about their pros, cons and suitability for various subjects. Active engagement, organisation, and concise note-taking were emphasised. Overall, the session expanded my understanding and equipped me with effective strategies.
Day 2	18/05/23	Kunisha Reddy	Tone in Business Writing, Language Register, Accountability - Personal Accountability, Cycle of Accountability, Group Accountability & Difference between accountability and responsibility	One should maintain a professional and respectful tone in business writing and take personal accountability for his/her actions. Recognizing the impact of tone and embracing accountability can enhance communication, foster personal growth, and drive positive outcomes in business settings.
Day 3	22/05/23	Kunisha Reddy	Various memes on personal accountability	Memes, with their humorous and relatable nature, served as effective tools to convey important messages in a lighthearted and memorable manner.
Day 4	25/05/23	Kunisha Reddy	Kolb's Experiential Learning Cycle, Left vs Right Brain, KASH Model, Knowledge Chunking, Retaining information, Pushing Ourselves, Activity	I now have a deeper understanding of how these four components interrelate and influence human behaviour. I also gained insights into assessing and developing my knowledge, attitude, skills, and habits to achieve personal or professional growth.

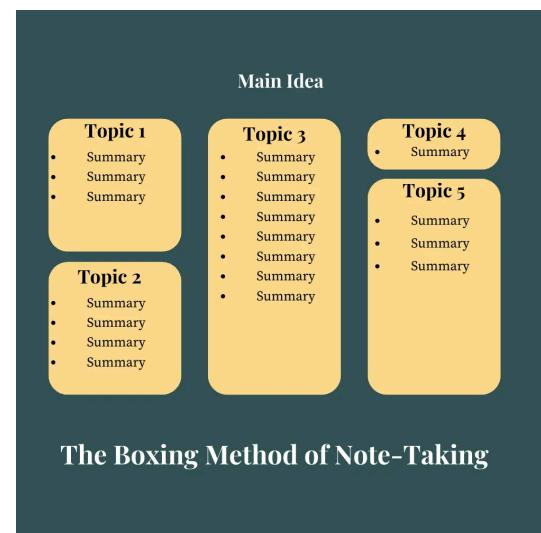
Day 1 (15/05/23) : Session 1

15/05/23	Write Right
Flow Notes Method <ul style="list-style-type: none"> • It's also called the Mind Mapping method. • It involves starting with a central concept and branching out to related subtopics. <p>Pros of Flow Notes Method</p> <ul style="list-style-type: none"> • Visually appealing • Links topics and provides an overview of all the topics. • Emphasises key words and phrases, making it easier to identify important information at a glance. • Captures essential points and is hence concise. • Good for last minute revision. <p>Cons of Flow Notes Method</p> <ul style="list-style-type: none"> • Not always clear and occupies a lot of space • May not suit those who prefer structured note-taking. • Not descriptive. It can be challenging to capture complex or lengthy information. • Requires practice to create effective and coherent mind maps. 	
The Outline Method <p>The Outline Method involves creating a hierarchical structure of the main ideas and supporting details. It follows a logical and sequential format, with headings, subheadings, and bullet points.</p> <p>Pros of the Outline Method</p> <ul style="list-style-type: none"> • It's clear and properly emphasises the relationships between ideas. • Systematic and detailed. • Enables easy navigation and quick reference. • Simplifies complex information by breaking it down into manageable sections. • Detailed and comprehensive. • Easier to study from and understand. <p>Cons of The Outline Method</p> <ul style="list-style-type: none"> • Requires a lot of space. • Requires active listening. • Prior knowledge is needed. • Time consuming method. • Difficult to connect ideas. 	
The Boxing Method <p>Boxing involves visually separating different ideas or concepts by boxing them in separate sections.</p> <p>Pros of The Boxing Method</p> <ul style="list-style-type: none"> • Provides a visual structure for note organisation. • Highlights key ideas and concepts. 	

- Makes it easier to review and locate specific information.
- Separation and segregation of ideas.
- Allows effective use of blank space.
- Visually appealing.

Cons of The Boxing Method

- Requires a lot of space
- May not accommodate interconnected information.
- Hard to figure out which topic is more important.
- Not spontaneous.



It involves writing notes in complete sentences, summarising the main ideas and important details.

The Sentence Method

Pros of The Sentence Method

- Running notes can be taken.
- Contains all the information.
- Doesn't require thinking.
- Records the whole lecture.
- Refinable

Cons of The Sentence Method

- Requires fast writing skills.
- Unorganized
- Contains unnecessary information also.
- Extremely descriptive.
- Wastage of paper.

Sentence Method – Example

1. Note taking can improve our [focus and concentration](#).
2. Note taking can improve [reading comprehension and lecture comprehension](#).
3. Note taking promotes [retention of information](#).
4. Note taking helps us to [identify key points](#).
5. Notes can contain information that is [not found elsewhere](#).
6. Notes taking can be a helpful step in [prewriting](#).
7. Notes can be helpful [study tools](#).

Charting Method

Charting involves organising information in a structured format using tables, graphs, or matrices. It is particularly useful for comparing and contrasting data.

Pros of Charting Method

- Facilitates visual representation of information.
- Makes it easier to identify patterns and relationships.
- Suitable for organising data.
- Reduces the amount of writing.
- Pulls out most relevant information.

Cons of Charting Method

- Hard system to use during a lecture.
- Not a lot of room to write.

Charting Method				
Method	Description	Application	Pros	Cons
Topic 1				
Topic 2				
Topic 3				
Topic 4				

- Prior knowledge is needed.
- Time consuming.

It involves dividing the page into three sections: a narrow column on the left for cues and questions, a larger area on the right for notes, and a section at the bottom for summarising key points.

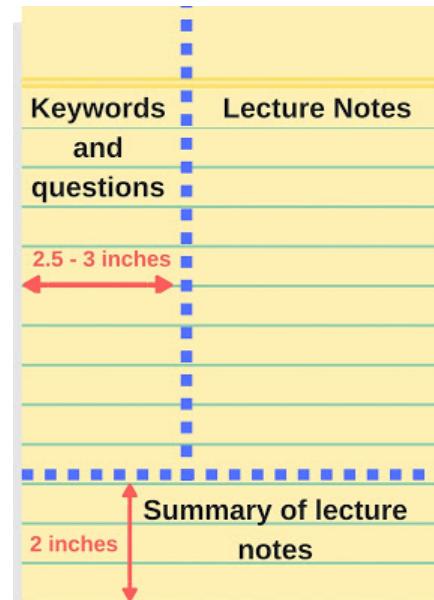
Cornell Method

Pros of Cornell Method

- Enhanced understanding and comprehension.
- Organised layout for easy review.
- Improved retention of the material.
- Saving time during study sessions.
- Flexibility to adapt to individual note-taking styles.

Cons of Cornell Method

- Requires initial practice and learning to use effectively.
- Structured format may not suit everyone's note-taking style.
- Takes time to format and structure the notes.
- Not suitable for capturing large amounts of information in a single session.



Summary

Speaker - Kunisha Reddy

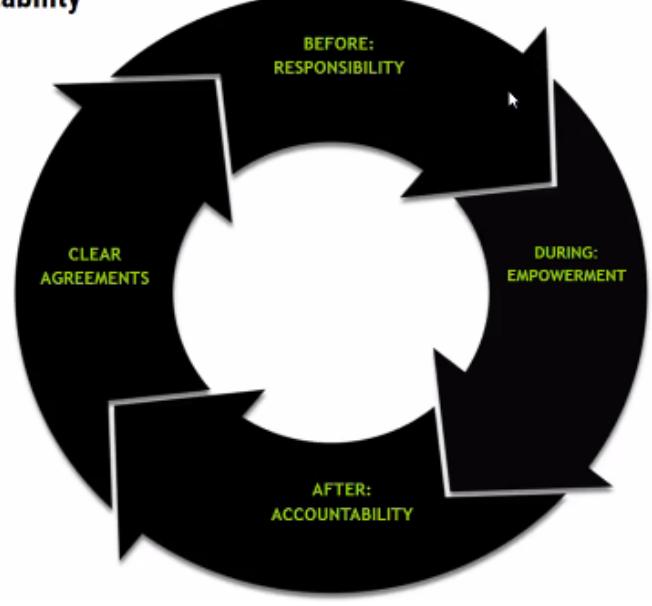
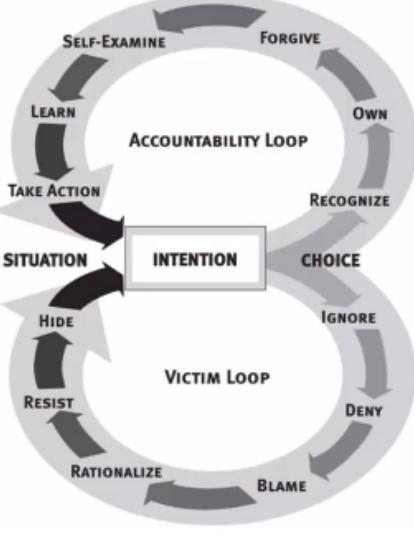
There are six popular methods of note-taking: Flow Notes, Outline, Boxing, Sentence, Charting, and Cornell Method.

Flow Notes capture information in a free-flowing manner, encouraging creativity but lacking organisation. Outlines create hierarchical structures to organise ideas and relationships between concepts. Boxing visually separates different ideas or categories. Sentence method involves writing detailed notes in complete sentences. Charting organises information using tables or graphs, suitable for comparisons and data-driven content. The Cornell Method combines cues, notes, and summaries for enhanced understanding, retention, and efficient reviewing.

Each method has its pros and cons, and the choice depends on individual preferences and note-taking goals.

DAY 2 (18/05/23) : SESSION 1

18/05/23	Tone in Business Writing & Accountability
Tone in Business Writing	<p>“Tone in writing refers to the writer’s attitude towards the reader and the subject of the message. The overall tone of a written message affects the reader just as one’s tone of voice affects the listener in everyday exchanges.”</p> <p>The following questions help us determine what kind of tone should be used:</p> <ul style="list-style-type: none"> • Why are you writing this document? • Who are you writing to? • What do you want them to understand? <p>Connotations are the feelings and ideas we associate with words beyond their literal meaning. They add emotional and cultural layers, shaping how we interpret and respond to language.</p> <hr/> <p>Do's for improved tone in corporate world</p> <ul style="list-style-type: none"> • Be confident. • Be courteous and sincere. • Use appropriate emphasis and subordination. • Use non-discriminatory language. • Stress the benefits for the reader. • Write at an appropriate level of proficiency. <hr/> <p>Not That, But This Statements</p> <ul style="list-style-type: none"> • Not : You must agree that I am qualified for the position. But: My qualifications in the areas of accounting and customer service meet your job requirements. Here,in the ‘But’ statement, we are presenting the facts in an objective way and logical way. • Not: You didn’t read the instructions carefully, that’s why your system has shut down. But: The system may automatically shut down if any installation errors occur. A person in trouble doesn’t wanna hear criticism. We can passivise it and not target them by using the ‘But’ statement. • Not: I am processing your order tomorrow. But: Your order will be available in two weeks. The But sentence is better because it indicates completeness and provides surety and the focus is on the customer. • Emphasis tone: Highlights important ideas or details using strong language or placement in the sentence. Subordination tone: Downplays or gives less prominence to certain ideas or elements by placing them in subordinate clauses or using less emphatic language. • Active tone: Expresses actions performed by the subject, conveying directness and clarity. Passive tone: Shifts the focus from the subject to the object, emphasising the recipient of the action and downplaying the doer. <hr/> <p>Language</p> <p>Register can be broken down into 4 main types:</p> <ol style="list-style-type: none"> 1. Formal/Academic Register: Presentations, reports and formal announcements.

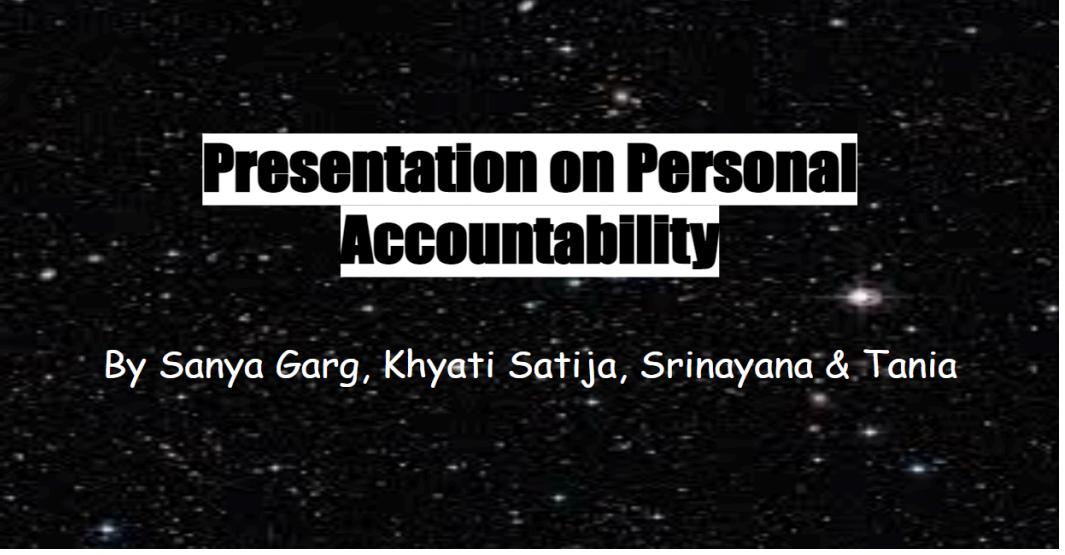
<p>Register :Why does it matter in the workplace?</p>	<ol style="list-style-type: none"> 2. Consultative Register: Professional settings, B2B(Business to Business), B2C(Business to Customer) 3. Informal/Casual Register: (Slang and colloquialisms) Friends and peers, some colleagues, friends and teammates. 4. Intimate Register: Close family members, parents, siblings, or partners.
<p>Personal Accountability</p>	<ul style="list-style-type: none"> • ▶ Hold Yourself Accountable And Never Be Held Back Janyssa Berrios TEDxYouth@L... In this video, Janyssa explains that while many are quick to blame others or make excuses, actions (and inactions) have consequences and by holding ourselves accountable and having a defined plan, we can overcome adversity and become stronger.
<p>Cycle of accountability</p>	<ul style="list-style-type: none"> • The Cycle of Accountability During the cycle, we gain empowerment and become accountable and then clear agreements.  <ul style="list-style-type: none"> • ▶ How Leaders Hold Employees Accountable <ol style="list-style-type: none"> 1. According to this video, accountability is accepting the responsibility for the outcomes expected of you - both good and bad. 2. It explains that accountability starts with looking in the mirror and being accountable is our ticket to earning the right to hold other people accountable 3. In order to hold other people accountable: <ul style="list-style-type: none"> - Establish expectations. - Gain commitment. - Inspect what you expect. - Provide feedback and consequences. • Accountability Simplified: <ul style="list-style-type: none"> ○ Clear Agreements ○ Self Empowerment ○ Responsibility <p>Hence, accountability starts with attitudes, choices made, behaviours that follow, resulting in performance.</p> 

Individual Accountability	<ul style="list-style-type: none"> • <u>Steps for Building Individual Accountability</u> <ol style="list-style-type: none"> 1. Don't Blame: Blame kills accountability 2. Look in the Mirror: Acknowledge your part in the problem 3. Engineer the Solution: Fix the problem. 					
Inaction & obstruction	<ul style="list-style-type: none"> • <u>Inaction = Obstruction</u> Inaction can hinder progress and act as a form of obstruction. <ol style="list-style-type: none"> 1. Leaving questions unanswered. 2. Not RSVPing to invites. 3. Not replying to texts and emails. 4. Not following up on tasks. 5. 'Nobody asked me' attitude. 6. 'Everyone is against me' attitude. 					
Group Accountability	<ul style="list-style-type: none"> • <u>Group Accountability:</u> Shared responsibility for goals, actions, and outcomes, fostering collaboration and mutual support.  <table border="1" data-bbox="795 842 1550 1201"> <tr> <td>1 Common Purpose WHY ↓ <i>Why does this matter?</i></td> <td>2 Clear Expectations WHO & WHAT ↓ <i>What does success look like?</i></td> <td>3 Communication & Alignment HOW ↓ <i>How do we set this up for success?</i></td> <td>4 Coaching & Collaboration ADJUST ↓ <i>How's it going/ adjustments needed?</i></td> <td>5 Consequences POSITIVE & NEGATIVE ↓ <i>Learn & Act</i></td> </tr> </table>	1 Common Purpose WHY ↓ <i>Why does this matter?</i>	2 Clear Expectations WHO & WHAT ↓ <i>What does success look like?</i>	3 Communication & Alignment HOW ↓ <i>How do we set this up for success?</i>	4 Coaching & Collaboration ADJUST ↓ <i>How's it going/ adjustments needed?</i>	5 Consequences POSITIVE & NEGATIVE ↓ <i>Learn & Act</i>
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Responsibility vs accountability	<ul style="list-style-type: none"> • Responsibility is taking ownership of actions. Accountability is taking ownership of results. 					

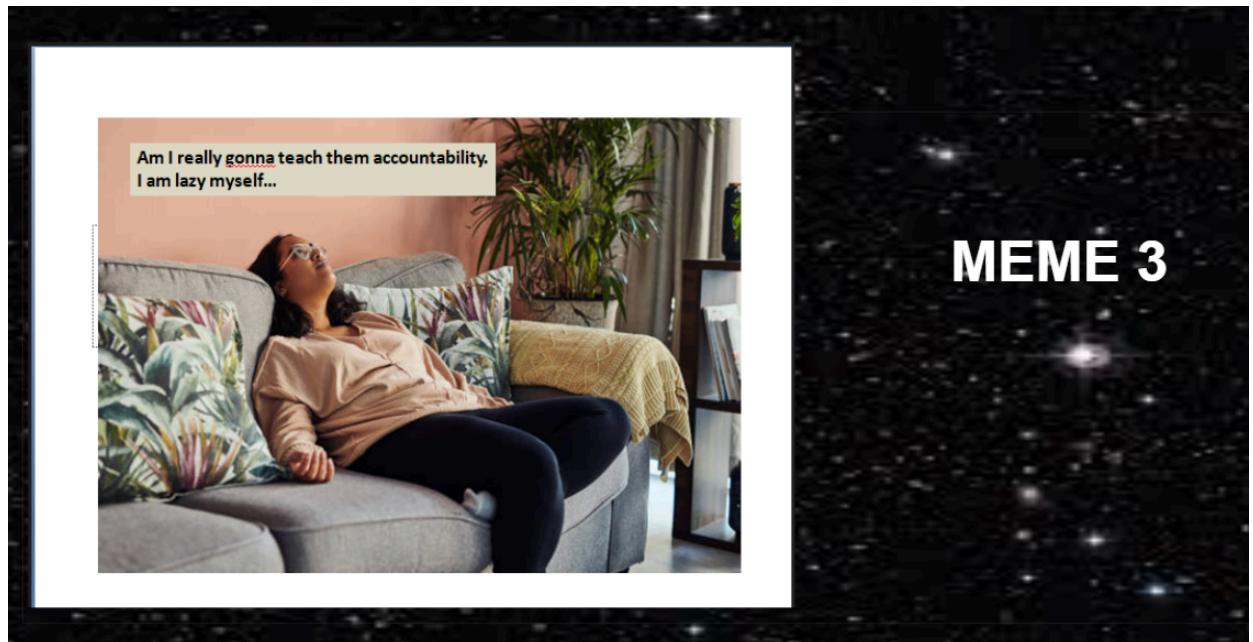
	Summary
Speaker: Kunisha Reddy	<ul style="list-style-type: none"> • I learned that tone in writing refers to the writer's attitude towards the reader and subject, affecting how the message is received. • Connotations add emotional and cultural layers to language. When writing, it is important to consider the purpose, audience, and desired understanding to determine the appropriate tone. The use of emphasis and subordination can highlight or downplay ideas, while active and passive tones affect the focus of the sentence • Register varies based on the context, such as formal, consultative, informal, or intimate. • Accountability requires individuals to take responsibility for their actions and

- | | |
|--|--|
| | <p>results, leading to personal growth and clear agreements</p> <ul style="list-style-type: none"> ● . Inaction can obstruct progress. ● Group accountability fosters collaboration and shared responsibility. |
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-
- . Inaction can obstruct progress.
 - Group accountability fosters collaboration and shared responsibility.

DAY 3 (22/05/23) : SESSION 1

22/05/23	ACTIVITY 1: Meme Making on Personal Accountability
Memes on Personal Accountability	<p>Personal Accountability means taking responsibility for one's actions and choices. With that in mind, I made a presentation for the same with my team members. The first meme was made by me and I personally thought of this meme because I procrastinate often and that's basically how I react before every exam that I have. We should acknowledge the role that we play in the outcomes of our lives. When we avoid accountability, we risk watching our lives fall apart due to negative consequences of our actions</p> <p>Link to the presentation :</p> <p><input checked="" type="checkbox"/> Presentation on Personal Accountability</p> 

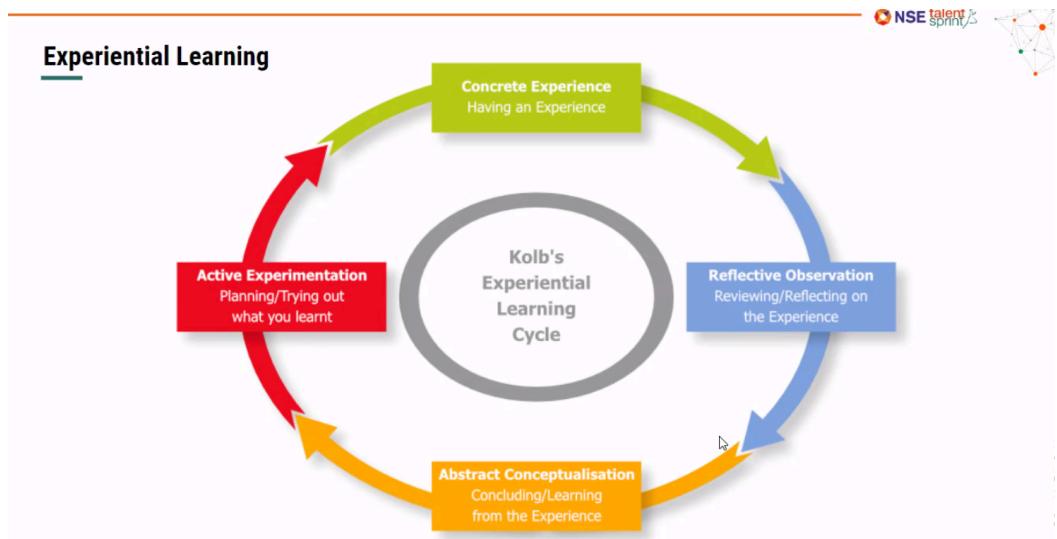
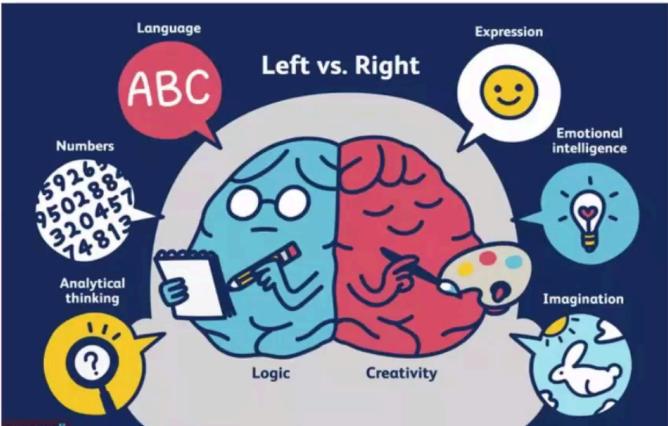


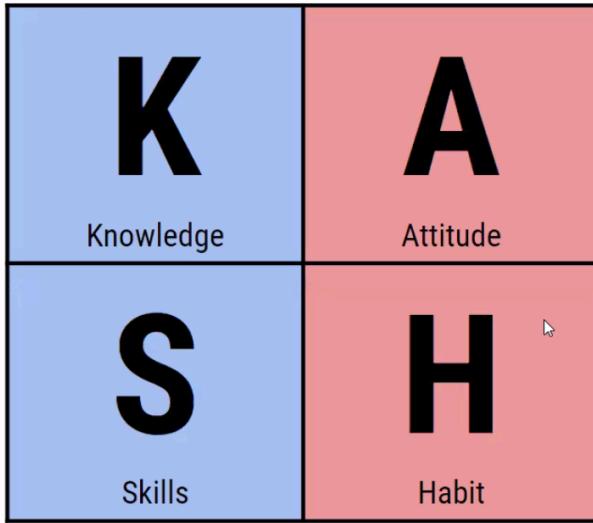
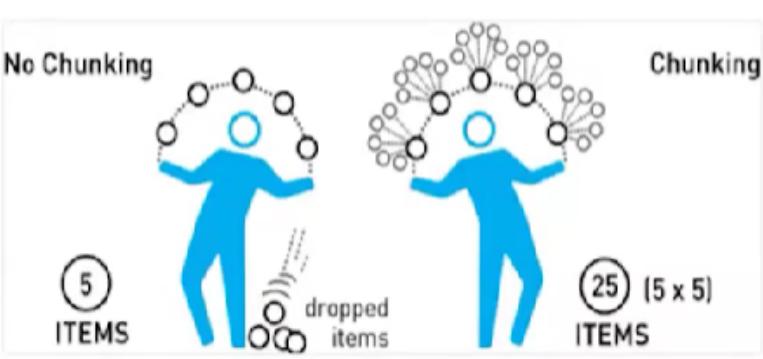


Speaker	Summary
Kunisha Reddy	Creating memes on personal accountability was an engaging and creative way to explore the

concept and encourage individuals to take responsibility for their actions. Memes, with their humorous and relatable nature, served as effective tools to convey the important message of accountability in a lighthearted and memorable manner.

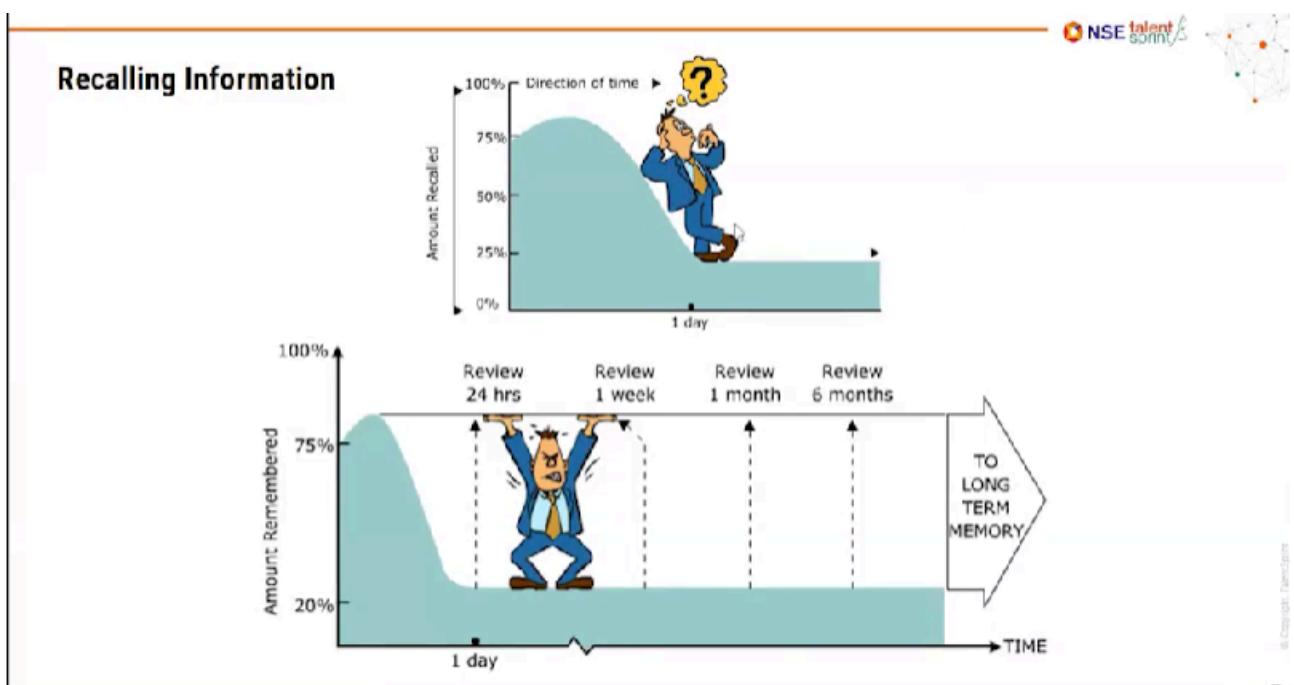
DAY 4 (25/05/23) : SESSION 1

25/05/23	KASH Model  <p>Kolb's Experiential Learning Cycle - learning through doing</p> <p>Based on a plan, we have an experience which is then reviewed and we finally learn based on the experience.</p>
Left vs Right Brain	Brain Balance  <p>Left brain - logic Right brain-creativity</p> <p>Different situations require different approach</p>

KASH Model (Knowledge, Attitude, Skills, Habit)	<p>KASH for Cash</p>  <p>Most people spend their energy, time, and money developing the left half of the KASH box.</p> <p>Most terminations and business failures are due to weakness in the right half of the KASH box.</p>
Knowledge Chunking	<p>Kash stands for Knowledge , Attitude, Skills & Habit</p> <p>This picture resembles the first picture. One is about buildable skills and the other is about regulation. Most people spend time working on knowledge and skills. We should talk about upskilling instead of knowledge. The part highlighted in blue might help us get a job but the part highlighted in red determines how we keep the job.</p> <p>A company may fire a person if he/she is</p> <ul style="list-style-type: none"> - pessimistic - Not accountable for his/her mistakes - Rigid in nature <hr/> <div style="background-color: #f0f0f0; padding: 10px;"> <h3>Knowledge Chunking</h3> <h4>Hacking your working memory: chunking</h4>  <p>When we don't organise information, even in our head, we drop various items. Chunking is organisation of items in our head.</p> </div>

Retaining & Recalling Information

- Focus your undivided attention.
- Understand the basic idea.
- Gain context
- Practice
- Recall
- Mini testing
- Learning from mistakes



The first image depicts how information appears when it is fresh. In this state, there is no immediate need for your brain to store it because you haven't communicated to the brain that it is important to remember. Without actively training the brain to retain this information, it is likely to be forgotten.

However, by reviewing the information within the first day, we can retain about 80% of it. By subsequently reviewing it once a week, then once a month, and finally once every six months, we can transfer the information from short-term memory to long-term memory. This way, it becomes embedded in our long-term memory and is less likely to be forgotten.

In summary, actively reviewing and reinforcing information at regular intervals significantly improves our ability to remember and retain it in the long run.

<p>How to Push Yourself?</p>	<p>Assess Yourself, Assure Yourself</p> <ul style="list-style-type: none"> ▪ I Have... ▪ I Wish I had... ▪ On the checklist yet to reach... <p>"Instead of worrying about what people say of you, why not spend time trying to accomplish something they will admire."</p> <p>— Dale Carnegie</p> <p>"One of the greatest discoveries a man makes, one of his great surprises, is to find he can do what he was afraid he couldn't do."</p> <p>— Henry Ford</p> <p>Activity</p> <div style="background-color: #f0f0f0; padding: 10px;"> <p>Run yourself through the KASH model, and answer these questions:</p> <p style="text-align: center;">What knowledge do I possess? What are my skills? What is my attitude towards my career? What habits do I have?</p> <p style="text-align: center;">Is this enough to secure a place as a Google STEP intern?</p> </div>
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Speaker	Summary
Kunisha Reddy	<ul style="list-style-type: none"> • The KASH model stands for Knowledge, Attitude, Skills, and Habits. It emphasises the significance of these four components in understanding human behaviour and achieving personal or professional growth. • Different situations require different approaches, highlighting the need for adaptability and flexibility in our actions and mindset.

- While knowledge and skills are important for getting a job, attitudes and habits are crucial for maintaining it. Pessimism, lack of accountability, and rigidity can lead to negative consequences in the workplace.
 - Organising information in our minds through techniques like chunking helps us better retain and process the information.
 - The importance of focused attention, understanding concepts, gaining context, practice, recall, mini-testing, and learning from mistakes are highlighted as effective learning strategies.
 - Reviewing information within the first day and at regular intervals (weekly, monthly, and every six months) helps transfer it from short-term to long-term memory, increasing retention.
 - In summary, the session emphasised the significance of the KASH model, the need for adaptability, effective learning strategies, and the role of regular review in retaining and embedding information in long-term memory. It also highlighted the importance of attitudes and skills for success in various contexts, including the workplace.
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OFFLINE BOOTCAMP NOTES

Week 1	Date	Presenter	Topics Discussed	Takeaways
Day 1	03/06/23 (Saturday)			Inauguration / Orientation
Day 2	05/06/23 (Monday)	Asokan Pichai	Basic calibration exercises, python standard libraries, building abstractions, lucky number, collatz sequence, professional vs normal programming, epimenides paradox	I learned the importance of being familiar with programming tools, such as Python's standard libraries, and having documentation readily available. Understanding the modulo operator and floor division can aid in number manipulation. Caution is advised when using recursion and repeatedly modifying lists due to performance implications. Thoughtful naming is emphasised as a vital aspect of programming.
Day 3	06/06/23 (Tuesday)	Kunisha Reddy	And monsters, self introduction, tips for self introduction/public speaking, language, language vs communication, confidence building, why resolutions fall through and how to address it , setting SMART goals, transferable skills ,OKR	I learned that effective communication goes beyond language, emphasising active listening and empathy. Setting realistic goals with smaller milestones leads to greater success. Developing humility to seek help and leveraging transferable skills can accelerate progress. Overcoming procrastination requires discipline, rewards, and linking tasks to personal growth.
Day 4	07/06/23 (Wednesday)	Asokan Pichai	Professional Code, How to Write Professional code and Points to Remember,Kaprekar Transform, Clever Codes, Tuple Packing & Unpacking, Dynamic & Duck Typing, Recursion & Induction,Armstrong Number, Floating points & truncation, Sort vs Sorted, Void Space Characters, Filter function	Emphasise correctness in coding by focusing on readability, changeability, and testability. Rely on documentation as the primary source of knowledge and avoid relying on unreliable sources. Write clear and simple code rather than clever code, and approach problem-solving with a "how do I do this" attitude.
Day 5	08/06/23 (Thursday)	Asokan Pichai	ROT13, Functional Programming & Its importance, Triangular Numbers and Pentagonal Numbers, Functional Paradigm, Problems on multiples, idli distribution. Refactoring, Functional Paradigm,ROT -13 code, etc	Rot13 is a simple letter substitution cipher that can be used for basic encryption and decryption purposes. Functional programming provides powerful tools like higher-order functions and recursion for manipulating data in a flexible and concise manner.

Day 6	09/06/23 (Friday)	Asokan Pichai	Code to convert Roman Numbers to Indo Arabic & vice versa, figures to word conversion & vice versa, Feynman Technique, snake case to camel case & vice versa, Student Ranking Program , Fizzbuzz Game	The session emphasised the importance of breaking down problems into smaller, manageable functions to improve code organisation and readability. By focusing on small functions, it becomes easier to understand and solve specific parts of a problem, leading to more efficient and effective code development. Discussing our understanding of a problem helps improve our thought process and leads to better code writing . Communication and reflection are key aspects of the learning and problem-solving journey.
Day 7	10/06/23 (Saturday)	Sphoorthy V Anshul Kunisha Reddy	Introduction, What is mentorship & its importance, Sphoorthy's inspiring story, Aim off WE Program, Dilip's Story, Ikigai Invariance, Problem Solving, Processes involved in problem solving, Various Problems, Non- determinism and finding invariant, Parity, Hermeneutic Cycle Vision Board Presentations	.By seeking guidance from mentors, seizing opportunities, and learning from failures, we can unlock our full potential and lead a fulfilling life. Find out when you are moving in the wrong direction and move quickly. It's okay if you take extra time to solve questions. Refer to the chart and check colouring and repeat . I learned how to work in a team and give formal presentations . I was also motivated to achieve my goals whilst making the vision board.

(I have added most of the notes for the technical classes in the word document and some in the colab itself)

WE5BC_handouts

(drive link to colatz, altcase, idli, kaprekar, odometer,ROT13 problems)

DAY 2(05/06/23) : SESSION 1

05/06/23	Technical Session 1
Google Colab	https://colab.research.google.com/drive/1kqdp2U-qJOBSmr2N9alaXeJ5EKMExiVZ#scrollTo

Link	o=yoTGYPUD80aY&uniqifier=2
Important Points	<ul style="list-style-type: none"> - Always know your tools and have python documentation in hand - Collab uses 3.10.11 version (semantic) - Name functions and variables in such a way that, if anyone needs to continue the code written, they should be able to understand and continue it
Python Std Libraries	<p>Python standard libraries are a collection of pre-built modules and functions that come bundled with the Python programming language. These libraries offer a wide range of functionality, such as file handling, networking, data manipulation, and more. They provide developers with ready-to-use tools and solutions, saving time and effort in coding. With the Python standard libraries, developers can quickly implement common tasks and build robust applications with ease.</p>
Building an Abstraction	<ul style="list-style-type: none"> • Modulo operator when $ax+b$ ($a = -ve$) $-7\%5 = 3$ $7\%-5 = -3$ <p>Modulo is mathematically different from the remainder. Modulo 10 allows us to extract the last digit. Its sign is similar to the divisor.</p> <ul style="list-style-type: none"> • $//$ = float division Throws away the remainder (not the decimal) $n//10$ is a way to remove the last digit <p>Putting these two together a number can be traversed from right to left.</p>
Lucky Number	<p>If sum of all digits >9 Take sum of all digits again till you obtain a single digit</p>
Collatz Sequence	<p>Collatz Sequence odd= $x3+1$ Even = $/2$ odd numbers are multiplied by 3 and increased by 1, while even numbers are divided by 2</p>
Why shouldn't recursion be used for large numbers?	<p>Recursion should be used cautiously for larger numbers in Python due to the limited stack depth. The stack can be exhausted when using recursion extensively.</p>

	<p>Repeatedly modifying a list can lead to significant performance degradation and slow execution times.</p>
Professional Programming	<p><u>Naming is 90% of programming</u> Programming is a craft</p>
Epimenides Paradox	<p>The Epimenides paradox illustrates a self-referential problem where Epimenides, a Cretan, states that all Cretans are liars. However, since Epimenides himself is a Cretan, it creates a contradiction in his statement.</p> <p>"Their or five errers in this sentance" "Epimenides the Cretan says, 'that all the Cretans are liars,' but Epimenides is himself a Cretan; therefore he is himself a liar. Problem = self reference</p>
Ques to Solve	<p>"There are _ 0's, _ 1's, _ 2's, _ 3's, _ 4's, _ 5's, _ 6's, _ 7's, _ 8's and _ 9's in this sentence." "1234567891011121314151617..... What is the digit at the nth position?"</p>

Speaker	Summary
Asokan Pichai	<ul style="list-style-type: none"> Modulo Operator and Float Division: <p>Modulo operator (%) behaves differently from remainder. Allows extracting the last digit and preserves the sign of the divisor. Float division (/) discards the remainder, useful for removing the last digit. Traversing a number from right to left can be achieved using modulo and float division.</p> Collatz Sequence: <p>Describes a series of numbers where odd numbers are multiplied by 3 and increased by 1, while even numbers are divided by 2. Recursion and List Modification:</p> Recursion should be used cautiously with larger numbers due to limited stack depth. Naming and Programming:

	<p>Naming plays a significant role in programming, accounting for 90% of its essence.</p> <ul style="list-style-type: none"> • Epimenides Paradox <p>The Epimenides paradox illustrates a self-referential problem leading to contradiction.</p>
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DAY 3 (06/06/23) : SESSION 1

06/06/23	Goal Setting
And Monsters	And monsters - It's a Kunisha coined term to refer to people who use and to connect all the sentences they speak while talking about something.
Self Introduction	<p>In order to introduce oneself, one should answer these three questions</p> <ol style="list-style-type: none"> 1. Who are you? 2. What do you do? 3. What do you want to do?
Sample Self Introduction	<p>Hello everyone!</p> <p>I'm Sanya Garg, and I was born and raised in Delhi. Currently, I'm an engineering student pursuing a four-year B.Tech degree in Computer Science with a specialisation in AI from the prestigious Netaji Subhas University of Technology. I'm also a WE Scholar, a tech program by TalentSprint supported by Google.</p> <p>I believe that I am an amiable and hardworking individual with strong leadership skills. My passion lies in building a successful career for myself in the tech field. During the shift to online education, I feel that I couldn't give my 100%, which I regret. However, I am determined to make the most of the current opportunities and give my absolute best here.</p>
Tips for Self Introduction/ Public Speaking	<ul style="list-style-type: none"> • Instead of saying "That's it" or "That's all," you can use a more engaging phrase like "That's just a glimpse of who I am" or "That's a small part of my story." • By using these phrases, you create intrigue and curiosity, encouraging others to ask questions and learn more about you • It's important to give people clues and hints about your experiences, achievements, or interests to pique their interest and make them want to know more. <p>This way, you can foster meaningful conversations and connections.</p>
Language	Language is an essential tool of communication. It serves as a bridge that allows us to convey our thoughts, emotions, and ideas to others.
Language vs	

	<p>communication</p> <p>While language facilitates communication, it's important to note that effective communication goes beyond the mere use of words. It involves active listening, empathy, and understanding the context and needs of the person or audience we are communicating with. Language = tool of communication</p>															
	<p>Confidence Building</p> <p>I don't know what I don't know but what I know I know very well and I'll try to turn the unknowns into knowns</p>															
	<p>Why do resolutions fall through?</p> <ul style="list-style-type: none"> When it comes to setting resolutions or goals, they often fall through because we tend to set one big goal without considering the smaller milestones required to achieve it. In the excitement of wanting to better ourselves, we may end up setting high expectations that often become overwhelming. 															
	<p>How to address it?</p> <ul style="list-style-type: none"> To address this, it's crucial to set realistic, achievable, and meaningful goals. By breaking down the larger goal into smaller milestones, we can track progress and stay motivated throughout the journey. When we set milestones and reach the first finish line, we are not intimidated by other finish lines. Set small, meaningful and productive goals Make space for errors too. Make goals according to what works for you. 															
	<p>Remember that we have control over smaller periods of time . Control what you can and don't get overwhelmed if things don't go your way. You can prepare wild cards and have a counter plan to control the uncontrollable by controlling what you can. MAKE PLAN B and leave space for unknown uncontrollable things.</p> <p>Smart goals</p> <p>Setting SMART Goals</p> <table border="1"> <thead> <tr> <th>S</th> <th>M</th> <th>A</th> <th>R</th> <th>T</th> </tr> </thead> <tbody> <tr> <td>Specific</td> <td>Measurable</td> <td>Attainable</td> <td>Realistic</td> <td>Time-bound</td> </tr> <tr> <td>Do: Set real numbers with real deadlines. Don't: Say, "I want more visitors."</td> <td>Do: Make sure your goal is trackable. Don't: Hide behind buzzwords like, "brand engagement," or, "social influence."</td> <td>Do: Work towards a goal that is challenging, but possible. Don't: Try to take over the world in one night.</td> <td>Do: Be honest with yourself- you know what you and your team are capable of. Don't: Forget any hurdles you may have to overcome.</td> <td>Do: Give yourself a deadline. Don't: Keep pushing towards a goal you might hit, "some day."</td> </tr> </tbody> </table>	S	M	A	R	T	Specific	Measurable	Attainable	Realistic	Time-bound	Do: Set real numbers with real deadlines. Don't: Say, "I want more visitors."	Do: Make sure your goal is trackable. Don't: Hide behind buzzwords like, "brand engagement," or, "social influence."	Do: Work towards a goal that is challenging, but possible. Don't: Try to take over the world in one night.	Do: Be honest with yourself- you know what you and your team are capable of. Don't: Forget any hurdles you may have to overcome.	Do: Give yourself a deadline. Don't: Keep pushing towards a goal you might hit, "some day."
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	<p>Setting SMART goals can be helpful. SMART stands for Specific, Measurable, Achievable, Relevant, and Time-Bound. By setting clear and specific goals that are measurable and have a realistic timeframe, we can enhance our chances of success.</p> <p>Additionally, it's crucial to develop a sense of humility and confidence to ask for help when needed. Seeking assistance from others can accelerate our progress and provide valuable insights.</p>
Transferable Skills	<p>Transferable skills are those abilities and qualities that can be applied across various domains or contexts. For example, playing basketball can develop teamwork, grace under pressure, and efficient communication skills.</p> <p>Identifying and recognizing these transferable skills can help us leverage them in different aspects of our lives, including goal-setting and personal development.</p>
How to not procrastinate in the time spared for errors	<ul style="list-style-type: none"> • To ensure that we don't end up procrastinating during designated error time, it's helpful to give ourselves small rewards and maintain self-discipline. • Associating enjoyable activities or incentives with the tasks at hand can create a positive association and increase motivation. • Additionally, reassigning tasks and adding value to them by linking them to personal growth or long-term goals can make them more appealing.
OKR : Objective and Key Results	<p>objective = goals and main purpose/ agenda/ aim key results = outcome</p> <p>xyz format achieve x using y as measured by z</p>

Speaker	Summary
Kunisha Reddy	<ul style="list-style-type: none"> • Introduction: Introduce yourself by answering the three questions: Who are you? What do you do? What do you want to do? • Language and Communication: Language is a tool of communication, but effective communication goes beyond words and involves active listening and empathy. • Goal Setting: Set realistic, achievable, and meaningful goals. Break down large goals into smaller milestones to track progress and stay motivated. Make space for errors and adapt to unforeseen circumstances. • SMART Goals: Set Specific, Measurable, Achievable, Relevant, and Time-Bound goals to enhance success rates. • Humility and Asking for Help: Develop humility and confidence to ask for help when needed. Seeking assistance from others can accelerate progress and provide valuable

insights.

- **Transferable Skills:** Identify transferable skills that can be applied in different domains. Leverage these skills for goal-setting and personal development.
- **Avoiding Procrastination:** Give yourself small rewards, maintain self-discipline, and associate enjoyable activities or incentives with tasks. Link tasks to personal growth and long-term goals to increase motivation.

Incorporating these points will help us achieve goals, improve public speaking skills, set meaningful goals, enhance communication, and maintain focus and motivation.

DAY 4 (07/06/23) : SESSION 1

7/06/23	Technical Session 2
Today's colab link	https://colab.research.google.com/drive/1lvEKivH4dFO09sqLr9inOyar6ckfq7oN?usp=sharing
Professional Code	<ul style="list-style-type: none">• correct• readable• changeable• testable <p>All revolve around correctness only</p>
Kaprekar Transform	Kaprekar transform - out of all permutations of a 4 digit number, largest - smallest is the next and it should stop when one number repeats <ul style="list-style-type: none">→ Given an amount in dollars, convert it to nearest dime<ul style="list-style-type: none">◆ For the nearest dime, we can round off to one decimal place, but it won't work for nearest nickel
Anagrams	<ul style="list-style-type: none">→ Anagrams - words made of same letters: sorted(a) is a function that doesn't change the original word but sorts the alphabets of the word<ul style="list-style-type: none">◆ To make a list of anagrams from a list of words, dictionary can be used

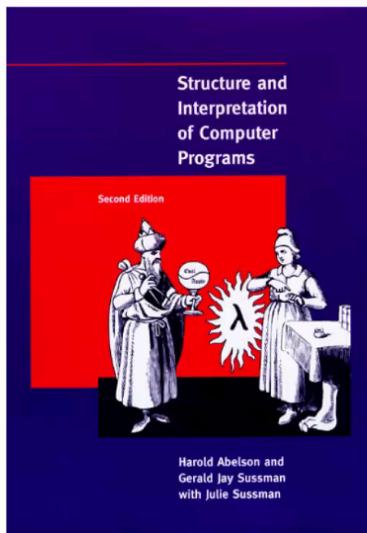
Important Points to Remember in order to write professional code

C2 versus P2

- Output is the start, not the end
- Code writing requires 500-5000 lines of code reading
- Use of tools—version control, test harnesses, issue trackers ..., messaging systems, code review systems, documentation systems
- Working in Teams
- Professional expectations—read documentation, ask questions, configure tools ...

DOCUMENTATION IS THE ONLY MEANINGFUL SOURCE OF KNOWLEDGE.
Do not consult quora, jokes for jokes, stack overflow etc.

Wisdom of the Wizards:#1



“Programs must be written for people to read, and only incidentally for machines to execute.” –Harold Abelson

First book of coding in MIT.

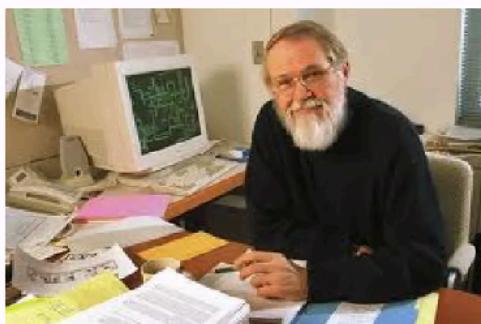
- -Functions should NOT do any Input Output
- -Write clear code, not clever code
- -Before writing code, have test data ready

- A clever code that produces an identity matrix
- $a = (a < 0) * 2 * a;$
 - Gives absolute value of a

```
for (int i = 1; i <= N; ++i) {  
    for (int j = 1; j <= N; ++j) {  
        a[i][j] = (i / j) * (j / i);  
    }  
}
```

This is a clever code that produces an identity matrix.

Wisdom of the Wizards



"Debugging is twice as hard as writing a program in the first place. So if you're as clever as you can be when you write it, how will you ever debug it?"
–Brian W Kernighan

This is exactly why clever code shouldn't be written.

Wisdom of the Wizards



When you feel the need to write a comment, first try to refactor the code so that any comment becomes superfluous.

Kent Beck

Boolean

- Never write

```
if x == True:
```

- Never write

```
if condition:  
    x = True  
else:  
    x = False
```

SIMPLY WRITE if x :
And in second point write return x

loops

- Never write

```
for i in range(len(x)):  
    t = x[i]
```

- Use zip() or enumerate()
- (Almost) never use break, continue

Tuple Packing and Unpacking:

Dynamic Typing or Duck Typing

Built-in Function Type

Recursion and Induction

- Tuple packing refers to the process of combining multiple values into a tuple.
- Tuple unpacking involves assigning the values of a tuple to multiple variables.

- Dynamic typing is a feature of programming languages where the type of a variable is determined during runtime.
- Duck typing is a concept where the suitability of an object for a particular operation is determined by its behavior rather than its type.

Ask these questions for Sequences

Is home?

Is there a next?

:

The built-in function "type" in Python is used to determine the type of an object or variable.

- Recursion involves solving a problem by breaking it down into smaller instances of the same problem.
- Induction is a method of reasoning or proof that establishes a general principle based on individual cases

"Develop the how do I do this attitude instead of saying I don't know "

Armstrong Number	<p>Armstrong Number : a type of narcissistic number (from greek mythology)</p> <p>Narcissistic Number = The sum of each digit raised to the power of n equals the original number.</p> <p>i.e. add each digit $^n = \text{num}$ If n is 3 = armstrong no.</p> <p>The most common examples of Armstrong numbers are 153, 370, and 371 The number 1729 is famous for being the Hardy-Ramanujan number.</p>
Floating Points and Truncation	<p>Floating points are approximate</p> <p>When truncation occurs, rounding the value to a certain number of decimal places, inaccuracies can arise. This means that comparisons involving truncated floating-point numbers can sometimes lead to false results.</p> <ul style="list-style-type: none"> → For storing a float variable, there are only finite spaces available in the system. How in 4 decimal system, $\frac{1}{3} = 0.3333$, $\frac{2}{3} = 0.6667$ but $2 * \frac{1}{3}$ is 0.6666
Strings	<ul style="list-style-type: none"> → <code>string_name.split()</code> splits the string into tokens at white spaces (<code>\t\n</code> is taken as one white space) → <code>string_name.split("pp")</code> splits the string into tokens at pp - how many pp, that many + 1 tokens
Coding Practice	<ul style="list-style-type: none"> → Date strings i/p = dd/mm/yyyy. o/p = give 7 digit integer yyyyddd year followed by howmanyth day: <ul style="list-style-type: none"> ◆ 14/02/2012: 2012045 ◆ Making a list of the cumulative number of days is better than making 31,28,...
Code Smells	<p>Practice coding from :</p> <ul style="list-style-type: none"> - Project euler - Advent of code (yearwise) - code kata - exercism
Mutator Methods and Sorting	<p>Code smells are a result of poor or misguided programming</p> <p>Temp variable - classic smell</p> <p>It tells that code organisation is poor and means that there is potentially one function that can be factored out.</p>
	<p>The <code>sort()</code> method applied to a list is a mutator, meaning it modifies the original list.</p>
	<p>Therefore, it is generally recommended to use the <code>sorted()</code> function instead when sorting a list, as it returns a new sorted list without modifying the original.</p>
	<p>Sort on x instead of $f(x)$</p>

```
>>> sorted({1: 'D', 2: 'B', 3: 'B', 4: 'E', 5: 'A'})  
[1, 2, 3, 4, 5]
```

Void space characters = \n \t etc

Special characters used to represent whitespace in programming languages. These characters include newline (\n), tab (\t), carriage return (\r), and others. They are used to format and structure text or code by inserting spaces, line breaks, or tabs.

The filter() function

Takes a boolean function as an argument and applies it to a sequence or iterable. It filters out elements for which the function returns True, creating a new iterable that contains only the filtered elements.

- Higher order functions - functions take function as arg
- Maps: takes a list and returns f(x) of all values of it
- Filter: takes a list and returns all the values that return true for the function. Filter takes boolean function
- List comprehension: way of representing map/filter as a function

Speaker	Summary
Asokan Pichai	<ul style="list-style-type: none"> • Professional code is correct, readable, changeable, and testable. • Documentation is the most meaningful source of knowledge. • The recommendation is to use if x: instead of if x == True: and simplify the code by returning x directly in the second point. • Tuple packing involves combining multiple values into a tuple, while tuple unpacking assigns the values of a tuple to multiple variables. • Dynamic typing and duck typing are features where the type of a variable or object's suitability is determined during runtime based on behaviour rather than explicit typing. • The built-in type function in Python is used to determine the type of an object or variable. • Recursion involves breaking down a problem into smaller instances, while induction establishes a general principle based on individual cases. • Developing an attitude of "how do I do this" instead of saying "I don't know" is

- encouraged.
- Armstrong numbers are a type of narcissistic number where the sum of each digit raised to the power of n equals the original number.
 - Floating-point numbers are approximate and truncation can lead to inaccuracies, affecting comparisons.
 - Code smells are indicative of poor programming practices, such as the overuse of temporary variables or the need for refactoring.
 - Using the sorted() function is preferred over the sort() method to avoid modifying the original list.
 - Void space characters, such as \n and \t, represent whitespace and are used for formatting and structure.
 - The filter() function takes a boolean function and creates a new iterable by filtering elements based on the function's return value.
-

DAY 5 (08/06/23) : SESSION 1

08/06/23	Technical Session 3
Google Colab Link	https://colab.research.google.com/drive/1Ntyr15_33_H0i9Zqw9I_X0ponJ2c6XaO?usp=sharing
Rot13	<ul style="list-style-type: none"> • Rot 13 is a simple letter substitution cipher that replaces each letter with the 13th letter after it in the alphabet.
Functional Programming	<ul style="list-style-type: none"> • Functional programming is important because it allows us to utilise higher-order functions, which provide us with a lot of power and flexibility in manipulating data.
Functional Paradigm	<ul style="list-style-type: none"> • Functional paradigm - functions as argument is a powerful tool and can be used to remove structural duplication
Triangular Numbers	<ul style="list-style-type: none"> • Triangular numbers are numbers that can form an equilateral triangle These numbers are in a sequence of 1, 3, 6, 10, 15, 21, 28, 36, 45, and so on. The numbers in the triangular pattern are represented by dots. The sum of the previous number and the order of succeeding numbers results in the sequence of triangular

Pentagonal Numbers	<p>numbers.</p> <ul style="list-style-type: none"> ● Pentagonal numbers are numbers that can form a regular pentagon. The first 30 pentagonal numbers are: 1, 5, 12, 22, 35, 51, 70, 92, 117, 145, 176, 210, 247, 287, 330, 376, 425, 477, 532, 590, 651, 715, 782, 852, 925, 1001, 1080, 1162, 1247, 1335 ● Functional programming typically avoids the use of while loops, preferring recursion and higher-order functions for control flow. <p>Write a program for a special list where odd numbers are placed in odd positions and even numbers are placed in even positions. Use zip, enumerate, don't use loops</p> <ul style="list-style-type: none"> → Installed WSL, Ubuntu and graphviz → Use graphviz to create flowchart on KASH Model.
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Speaker	Summary
Asokan Pichai	<ul style="list-style-type: none"> ● The Rot 13 cipher is a substitution cipher that replaces each letter with the 13th letter following it in the alphabet. ● Functional programming is important because it allows for the use of higher-order functions, which provide significant flexibility and power in programming. ● Triangular numbers are numbers that can form an equilateral triangle, while pentagonal numbers are numbers that can form a regular pentagon. ● Functional programming tends to avoid using while loops and instead emphasises recursion and higher-order functions for control flow. ● Becoming familiar with the built-in functions in Python is essential for writing high-quality code. One powerful technique is using list comprehension, which allows you to accomplish tasks that would normally take several lines of code in just one line. To optimize your code, it's important to remove any unnecessary repetition in the structure. Remember that there can be multiple approaches to solving a problem, and the best approach may vary from person to person. ● During the afternoon session, we all installed graphviz and created different graphs. Personally, I created a graph using the "KASH Model" by Kunisha.

DAY 6 (09/06/23) : SESSION 1

09/06/23	Technical Session 4
Colab Link	<p>https://colab.research.google.com/drive/1TSorNU6vVD4Vfval4xOF3hse4Zzqjo_A?usp=sharing</p>
Programming questions done in session	<ul style="list-style-type: none"> • arabic is place value system roman is additive system(add all things) it becomes subtractive system for 6 specific cases • Arabic to roman and roman to arabic - both can be done by using dictionary dictionaries are unordered (the order of key and value we give will not always be in order): the best way to make a dictionary is by zipping 2 lists; the order of key and value remains the same. • roman to arabic - it's easy to convert IX to VIII and use the additive system • Convert a given number to figure (1 - one): <ul style="list-style-type: none"> ◦ Make a function to convert 2 digits, 3 digits and all together • Snake_case and camelCase: <ul style="list-style-type: none"> ◦ To convert snake_case to camelCase split at _ and join with capitalized words ◦ To convert camelCase to snake_case when capital comes, replace with _ + lowercase letter • Student rank: • fizzbuzz - n%3==0 fizz, n%5==0 buzz, n%15==0 fizzbuzz <ul style="list-style-type: none"> ◦ Different approaches to this problem were given and each one more optimized ◦ If we run the if else method, it will run 3 ifs for 2 conditions, and that;s not optimized at all
Important Points	<p># Write small functions so the code writes itself.</p> <p># functional decomposition - figure out keys so that u can write</p> <p># Write the smallest function you can imagine and explore.</p> <p># Think about the problem more and articulate your understanding to improve code writing</p> <p># You don't learn if you don't talk.</p>
Game 1	<p>To open the Hindu Cryptic Crossword page, navigate to the appropriate website or source where the crossword is available. The grid for the crossword will be a 15x15 grid, and it needs to be numbered correctly. The numbering of the grid should follow the rules of crosswords, which usually have either 180 or 90-degree symmetry. Representing this grid can be done using a two-dimensional array or matrix where each cell represents a square in the grid.</p>
Game 2	<p>For the computer to play Wordle, you'll need a dictionary that contains valid words. One popular choice is the SOWPODS dictionary, which includes a list of valid words, particularly</p>

	<p>5-letter words that can be used in the game.</p>
Game 3	<p>To solve a Futoshiki puzzle, which is similar to Sudoku but with additional inequality signs (> and <) that must be satisfied, you can develop a computer program. The program should be able to handle puzzles of varying sizes ($n \times n$) and employ logic and constraint-solving techniques to find the correct solution.</p>
Game 4	<p>For the Water Sort Puzzle, you can create a program that simulates the puzzle. The program should allow players to interact with the game, move the water-filled containers, and apply the required sorting rules until the puzzle is solved.</p>
Game 5	<p>Thousand Bulls was one game No repeated letters in word. Tell word ...only letters Game similar to wordle but more classic game</p>
Game 6	<p>Playing cards involve four suits and numbered cards referred to as pips. In a three or two-player game, each suit is separated, and players take turns selecting cards, except for the diamond suit. The diamond suit holds a special value. In a game with three players, there are 13 rounds of bidding for shuffled diamonds. The highest bidder in each round obtains the card, and the player with the most diamond cards wins. In the event of a tie, the diamonds are divided equally among the tied players. You can develop a computer program that allows you to play this two-player card game against the computer, implementing the rules of bidding, card selection, and determining the winner.</p>

Speaker	Summary
Asokan Pichai	<p>In this session, we covered topics like Arabic to Roman numeral conversion, number-to-text representation, snake_case to camelCase conversion, and the FizzBuzz problem. We discussed the use of dictionaries, optimized approaches, and the differences between low-level and high-level languages. Overall, it was a comprehensive session on programming concepts and problem-solving techniques.</p>

DAY 7 (10/06/23) : SESSION 1
(Corporate Development Session)

10/06/23	Mentorship and its importance
Introduction	The session started with a slide showing the picture of Anita Alvarez being rescued from drowning by her coach Andrea Fuentes in the World Aquatic Championships. Her coach was able to save her as she was a mentor to her , knew her tactics and routine well and was experienced enough on her own to realise that something was wrong with Anita.
What is mentorship	-Mentorship helps both mentor and mentee to gain knowledge and serves as a safe space for sharing things and making room for improvement. - A mentorship requires time and effort. - We should just think about how to improve ourselves everyday and have a definition of success for our own selves and seek help from our mentors to achieve it.
Learning from Sphoorthy's story	One of the 3 legitimate human emotions is pride. With that in mind, Sphoorthy told us about her extremely motivating and inspiring success story which taught me that one should always take chances and keep looking for opportunities. It also taught me that everything works out in the end and there is always room for growth.
Aim of WE Program	The aim of WE program is to create a community of self sustaining confident women. It mainly focuses on three principles: 1. Learn to learn 2. Learning by doing 3. Learning without a fear of failure
Importance of Mentorship	- If you don't have a mentor, <u>find one & invest</u> - If you have a mentor & are already learning, <u>find your mentee & invest</u> . ‘There is NO excuse for anyone to DROWN , if you need help ASK !!!’
Learning from Dilip's Story	Dilip's motivating story taught us that whenever someone tells us that we aren't capable of doing something, instead of being sad about it, a spark should be ignited in us and we should prove them wrong for our own satisfaction. We should always learn from our failures . If someone questions us, the way we dress or the way we carry ourselves, we shouldn't let it affect us.
Ikigai	Ikigai = reason for being

10/06/23	Summary
Sphoorthy	<ul style="list-style-type: none"> • <u>Mentorship</u>: Mentorship provides a safe space for sharing, learning, and improving. It requires time and effort, benefiting both the mentor and mentee. Seeking help from mentors helps in defining personal success and achieving it. • <u>Taking Chances and Growth</u>: Sphoorthy's success story teaches the importance of taking chances, seeking opportunities, and believing that everything works out in the end. It emphasises continuous growth and development. • <u>Seeking Help and Igniting Spark</u>: Dilip's story highlights the importance of seeking help when needed and using criticism as motivation to prove others wrong. Learning from failures and not letting external judgments affect personal confidence are crucial. • <u>Ikigai</u>: Ikigai refers to finding one's reason for being. It encourages self-reflection and discovering the intersection of passion, mission, vocation, and profession.

DAY 7 (10/06/23) : SESSION 2 (Discrete Mathematics)

10/06/23	Discrete - Invariance & Problem Solving
Question	Topics to be discussed in class: Invariants + how problem solving works
Invariant	Suppose you are in a room in which 100 murderers are present. One murder comes and kills a murderer. How many murderers are present? Ans = 100 murders (this concept is called invariance)
Processes involved in Problem Solving	<p>Invariant is something that doesn't change throughout the problem. Once an invariant is found, it is easier to tackle problems.</p> <p>Problem Solving involves the following processes:</p> <ol style="list-style-type: none"> (1.) Abstraction = Starting a vague idea and boiling it down to simple expressions which help us solve a particular problem is referred to as abstraction. Point of abstraction is to get rid of any expression that isn't helping. (2.) Calculation = calculate the values from the bits of data from step 1 (3.) Interpretation = Converting the variables or the expressions obtained from abstraction

	<p>back to normal form.</p>
Problem 1 : Chocolate Bars	<p>Problem 1: CHOCOLATE BARS</p> <p>A rectangular chocolate bar is divided into squares by horizontal and vertical grooves, in the usual way. It is to be cut into individual squares. A cut is made by choosing a piece and cutting along one of its grooves. (Thus each cut splits one piece into two pieces). Find the number of cuts needed to completely cut the chocolate into all its squares.</p>
Solution	<p>N rows M columns $n*m - 1 = \text{ans}$</p> <p>Let p be initial number of pieces and c be the cut When cutting, $(p,c) \rightarrow (p+1, c+1)$ Basically after every cut pieces + 1 In this equation, the invariant is $(p-c)$ as it is always a constant</p> <p>Start $p=1, c=0$ End $p = n*m, c = ?$ $c = n*m - 1$ as $p - c = \text{constant} = 1$ Thus $c = p-1$ i.e. (pieces - 1) or $(n*m - 1)$</p>
Problem 2	<p>Problem 2 $M,n = m+3, n-1$ Find the invariant.</p>
Solution	<p>Answer = $m+3n$ To check if this is the correct solution, : $E[\text{LHS}] = E[\text{RHS}]$ $M + 3n = (m+3) + 3(n-1)$ Way to solve = by eliminating constants</p>
Problem 3	<p>Problem 3 11 large empty boxes are placed on a table. An unknown number of the boxes is selected and into each eight medium boxes are placed. An unknown number of the medium boxes is now selected and into each eight small boxes are placed. At the end of this process, there are 102 empty boxes. How many boxes are there in total?</p>
Solution	<p>Answer = 115 One method of solving it is using equations $b = \# \text{ boxes}$ $E = \# \text{ empty boxes}$ $(b,e) = (b+8, e - 1 + 8)$ Invariant = $7b - 8e$</p>

Assume $N_b + M_e = \text{invariant}$
Invariant [LHS] = invariant [RHS]
 $N_b + M_e = N_b + 8N + M_e + 7M$
 $\Rightarrow \text{invariant} = E = 7b - 8e$

Initially $e = 11, b = 11 \Rightarrow E = -11$
Finally $e = 102, b = ? , E = -11$
Therefore $E = 115$

Problem 4**Problem 4**

Several tumblers are placed on a table. Some tumblers are upside down, some are upside up. However, some tumblers may not be turned individually; an allowed move is to turn any two tumblers simultaneously.

From which initial states of the tumblers is it possible to turn all tumblers upside up?

Ans = even number of upside down tumblers needed

$u = \# \text{No. of upside up tumblers}$

2 up $\Rightarrow u = u-2$

2 down $\Rightarrow u = u+2$

1 up 1 down \Rightarrow SKIP STEP

Non determinism \Rightarrow whenever you write a prog, you know the steps it'll take i.e. all programs we write will be deterministic in nature

How to find an invariant which is true for all three cases stated above?

`iseven(u) \Rightarrow finally even u`

`isodd(u) \Rightarrow finally odd u`

Finally upside down tumblers = 0

Non-determinism and finding invariant**Problem 5****Black and White Balls:**

Consider an urn filled with a number of balls each of which is either black or white. There are also enough balls outside the urn to play the following game. We want to reduce the number of balls in the urn to one by repeating the following processes as often as necessary.

Take any two balls out of the urn, if both have the same colour, throw them away and put another black ball into the urn, if they have different colour, return the white one to the urn and throw the black one away.

Each execution of the above process reduces the number of balls in the urn by one, when only one ball is left the game is over.

What, if anything, can be said about the colour of the final ball in the urn in relation to the original number of black balls and white balls?

Answer =

$w = \#\text{count of white balls}$

Solution

$b = \#$ count of black balls

Conditions

$$(w,b) = (w-2,b+1)$$

$$(w,b) = (w,b-1)$$

$$(w,b) = (w,b-1)$$

Last 2 conditions are same

$$\text{So, } (w,b) = (w-2,b+1)$$

$$\text{And } (w,b) = (w,b-1)$$

Here parity of white ball is constant

$$w \% 2 = E$$

$I_{\text{seven}}(w)$ = invariant

$W = \text{odd} \Rightarrow \text{final ball white}$

$W = \text{even} \Rightarrow \text{final ball black}$

Problem 6

A chessboard has had its top-right and bottom-left squares removed so that 62 squares remain. An unlimited supply of dominoes has been provided; each domino will cover exactly two squares of the chessboard.

Is it possible to cover all 62 squares of the chessboard with the dominoes without any domino overlapping another domino or sticking out beyond the edges of the board?

Answer = Not possible

$b = \#$ no of covered black square

$w = \#$ covered white square

$$(b,w) = (b+1,w+1)$$

$$B - w = \text{constant} = -2$$

However, $b - w = \text{actually}$

Thus it is a contradiction

And the ans is not possible

Key concept = colour of the board

Key invariant here is the pattern followed.

Problem 7

Tetrominoes : A tetromino is a figure made from 4 squares of the same size. There are five different tetrominoes, called the O,Z,L,T,I tetrominoes.

Assume the board is made up of squares of the same size as the ones used to make the tetrominoes. Overlapping tetrominoes or tetrominoes that stick out from the sides of the board are not allowed..

- Suppose a rectangular board is covered with tetrominoes. Show that at least one side of the rectangle has an even number of squares.

Solution	Answer = number of covered squares = c(say) $C = c+4$ (when being covered) Initially $c= 0$, $c= 4k$ Area = length*width Either length has to be even or width or both Hence, proved.
Problem 8	Problem 8 Suppose a rectangular board can be covered with T-tetrominoes. Show that the number of squares is a multiple of 8.
Solution	Answer= $b=\# \text{of black square}$ $w=\# \text{of white square}$
Problem 9	Problem 9 Suppose a rectangular board can be covered with L-tetrominoes. Show that the number of squares is a multiple of 8.
Parity	Ques : What is parity? Parity of a number x is $\text{parity}(x) = x \% 2$ Where % is the remainder
Motive of the session	Find out when we are moving in the wrong direction and move quickly. It's okay if you take extra time to solve questions. Refer to the chart and check colouring and repeat .
Hermeneutic Cycle	Problem -> analyse -> steps -> synthesis -> problem

Speaker	Summary
Anshul	In this session, we discussed the concepts of invariants and problem-solving strategies. Invariants are values or properties that remain constant throughout a problem or process and can help simplify problem-solving. We explored various problems and identified their corresponding invariants to find solutions. The process of problem-solving involves abstraction, calculation, and interpretation, where we abstract the problem, perform calculations, and interpret the results.

We examined several problem scenarios, such as cutting a chocolate bar, determining the total number of boxes, flipping tumblers, playing the black and white balls game, covering a chessboard with dominoes, and using tetrominoes to cover rectangular boards. In each problem, we identified the relevant invariants and used them to analyse and find solutions.

Additionally, we discussed the concept of parity, which determines whether a number is even or odd. Parity plays a significant role in identifying patterns and constraints in certain problems.

Find out when we are moving in the wrong direction and move quickly. It's okay if you take extra time to solve questions. Refer to the chart and check colouring and repeat .

Overall, the session emphasised the importance of identifying invariants and utilising problem-solving techniques to tackle complex problems effectively. By understanding the underlying principles and patterns, we can approach problem-solving more efficiently and find elegant solutions.

DAY 7 (10/06/23) : SESSION 3 (Corporate Skills Session)

10/06/23	Vision Board Presentation
Link to our group's presentation	https://www.canva.com/design/DAFIBmnDiJI/E4SVBt93AqgA40cOYk1n0A/edit?utm_content=DAFIBmnDiJI&utm_campaign=designshare&utm_medium=link2&utm_source=sharebutton

Our Group Vision Board



Instead of selecting any random Pinterest wallpaper for our vision board, we intentionally created a collage of images related to Google because we believed it would inspire us and fuel our motivation to work towards achieving it. We included a Google cap to serve as a reminder of the rewards and benefits that come with joining Google, acting as a source of motivation. Additionally, we incorporated empowering quotes and affirmations, such as "I am capable," to constantly reinforce the idea that with dedicated efforts, our dreams can indeed become a reality. We made this collage our laptop wallpaper so that every time we open our laptops, we are greeted with a visual reminder of our goal.

Individual Vision Board



Within my vision board, I deliberately incorporated a prominent image of the Google Hyderabad office, which I had the privilege of visiting recently. This image acts as a powerful motivator, fueling my determination to exert maximum effort towards achieving my goal. Furthermore, the inclusion of positive affirmations, which greet me each time I unlock my phone, instils a deep sense of belief in my ability to succeed through persistent hard work. In addition to the Google image, I curated a visually appealing collage using various captivating elements, further stimulating my drive and inspiring me to strive for excellence.

10/06/23

Summary

Kunisha Reddy

During the session, I had the opportunity to share my vision board, which revolved around my goal of becoming a Step intern. My vision board featured a central image of Google, representing my aspiration to join the organisation. I supplemented it with inspiring visuals and words to reinforce my motivation. I incorporated uplifting quotes and affirmations that reminded me of my capabilities and fueled my determination to secure the internship. By presenting my vision board, I aimed to showcase my commitment and desire for bagging the STEP internship. The session fostered a spirit of inspiration and encouraged others to visualise and pursue their own goals with enthusiasm.

WEEK 2 OVERVIEW

Week 2	Date	Presenter	Topics Discussed	Takeaways
Day 9	12/06/23 (Monday)	Asokan Pichai	Use of Latex, Pelican ,Sphinx, Using WSL, Learning about Files, Directory, etc, Various WSL commands ,Binary Files, Text Editors, tips on writing code, Idea of Administrator in OS, Shell, Crossword Numbering	I learned how to use LaTeX and Sphinx . I also learned WSL commands. Writing code that runs and checking for running code at each step simplifies the debugging process.Identifying and utilising underlying abstractions helps in implementing code effectively.Reading documentation thoroughly and thinking critically are crucial for successful coding.
Day 10	13/06/23 (Tuesday)	Asokan Pichai	Odometer Problem, Using Git and WSL properly, Creating repositories, using Git commands ,Untracked Files, closing and saving commands in editors, Elixir, Haskell, Scala	Git is a powerful version control system that helps manage changes and collaborate on projects effectively.Branching in Git allows for independent work on different features or versions.Understanding basic Git commands and concepts like commits and untracked files is essential for efficient usage.
Day 11	14/06/23 (Wednesday)	Asokan Pichai Kunisha Reddy	Revisited Odometer Problem, Codes in Elixir, Haskell, Scala, Gitlab Analysing your day, Pareto Principle, Misunderstandings in Time Management, Prioritising, Procrastination, Time & Culture, Eisenhower Matrix, Busy vs Productive , Urgent vs Important	I learned how to effectively write programs in these languages. When it comes to time management,it's important to set realistic expectations and prioritize tasks based on their importance and urgency.The Eisenhower Matrix is a helpful tool for prioritizing tasks and ensuring that important activities are not overshadowed by less significant ones.
Day 12	15/06/23 (Thursday)	Asokan Pichai	Wordle Program, History of Open Source & Computers	The session highlighted the evolution of open source and its impact on technology
Day 13	16/06/23 (Friday)	Asokan Pichai	Cows Game in GitLab and presentation, Diamond Cards Game	I learned how to use GitLab properly.
Day 14	17/06/23 (Saturday)	Askoan Pichai Kunisha Reddy	Object Oriented Programming Learning through Games	I learned about OOP Playing Games was a fun and light way of teaching things.

Day 9 (12/06/23) : SESSION1

12/06/23	Technical Session 6
Google Colab Link	https://colab.research.google.com/drive/1-Ca_UOijmTKx9jdfQKTXDWvz9PfUmvEQ?usp=sharing Write crossword code too.
Tips on Writing Code	<ul style="list-style-type: none">• We should write a function which reproduces the previous result so that the code writes itself.• At every point check if you have a running code. It makes it so much easier to debug.• WRITE EXPLORATORY CODE. WRITE CODE THAT RUNS.
Programs done	<ul style="list-style-type: none">→ Printing pyramid patterns without using “for loop” (to printing in middle, use s.center(width of string))→ Crossword numbering:<ul style="list-style-type: none">◆ Numbering an empty crossword◆ Giving which number in which position with indices→ Doing crossword numbering using grid is merely something that can be written in C, so doing by using strings, numbering, then transpose and numbering is much better
Don't confuse the content of a string with what happens when it's printed	<p>Don't confuse the content of a string with what happens when you print it</p> <div style="border: 1px solid #ccc; padding: 10px; margin-bottom: 10px;"><pre>[24] 1 s = "Hello\nWorld"</pre></div> <div style="border: 1px solid #ccc; padding: 10px; margin-bottom: 10px;"><pre>▶ 1 s ↳ 'Hello\nWorld' □</pre></div> <div style="border: 1px solid #ccc; padding: 10px; margin-bottom: 10px;"><pre>[26] 1 print(s)</pre></div> <div style="border: 1px solid #ccc; padding: 10px; margin-bottom: 10px;"><pre>Hello World</pre></div> <p>Inspect and print can be slightly different or same depending on us.</p>



1 print(**print**)

⇨ <built-in function print>

Most imp ques = can u find the underlying abstraction ?

Find the abstraction and use it and implement it then the code will write itself.

**Latex,
Pelican,
Sphinx**

Latex = typesetting tool

Pelican = static site generator for blogs

Sphinx = documentation generator for websites

READ DOCUMENTATION THOROUGHLY

Stop doubting every step and THINK

File Named entity that contains some stuff = file

Directory Directory is a place where files are put.
Directories are used to organize files and create a structured hierarchy within the file system.

**pwd
command** On writing pwd, you get

Mac
/user/username

WSL
/home/name

The "pwd" command displays the present working directory, providing the current location within the file system.

cd command cd stands for change directory.
On writing cd, we end up in our home directory

ls command "ls" is a command used to list the files and directories present in the current working directory.

```

hier(7)          Miscellaneous Information Manual      hier(7)
NAME
    hier - description of the filesystem hierarchy

DESCRIPTION
    A typical Linux system has, among others, the following directories:
    /
        This is the root directory. This is where the whole tree starts.

    /bin
        This directory contains executable programs which are needed in single user mode and to bring the system up or repair it.

    /boot
        Contains static files for the boot loader. This directory holds only the files which are needed during the boot process. The map installer and configuration files should go to /sbin and /etc. The operating system kernel (initrd for example) must be located in either / or /boot.

    /dev
        Special or device files, which refer to physical devices. See mknod(1).

```

Manual page hier(7) line 1 (press h for help or q to quit)

**No work
should be
done in
home
directory**

1st thing to learn = learn to organise your work
 Never do all work in home directory
 Don't clutter it
 Ideally it should not contain any files only directories

**HTML &
LaTeX as
markup
languages**

HTML is the markup language used for creating web pages. It utilises tags to define the structure and formatting of text and other elements on a webpage.
 LaTeX is another markup language commonly used for typesetting scientific and technical documents, such as research papers.

Binary Files

Executable files are referred to as binary files and can be run directly on a computer system.

**Text Editors
in Linux**

Various text editors are available for creating and editing files in a Linux system. Popular choices include VS Code, Vim, Emacs, Nano, and Geany, each with its own set of features and functionalities.
 We use an editor to create files in linux system

Currently popular editor = vs code

In linux its vim and emux

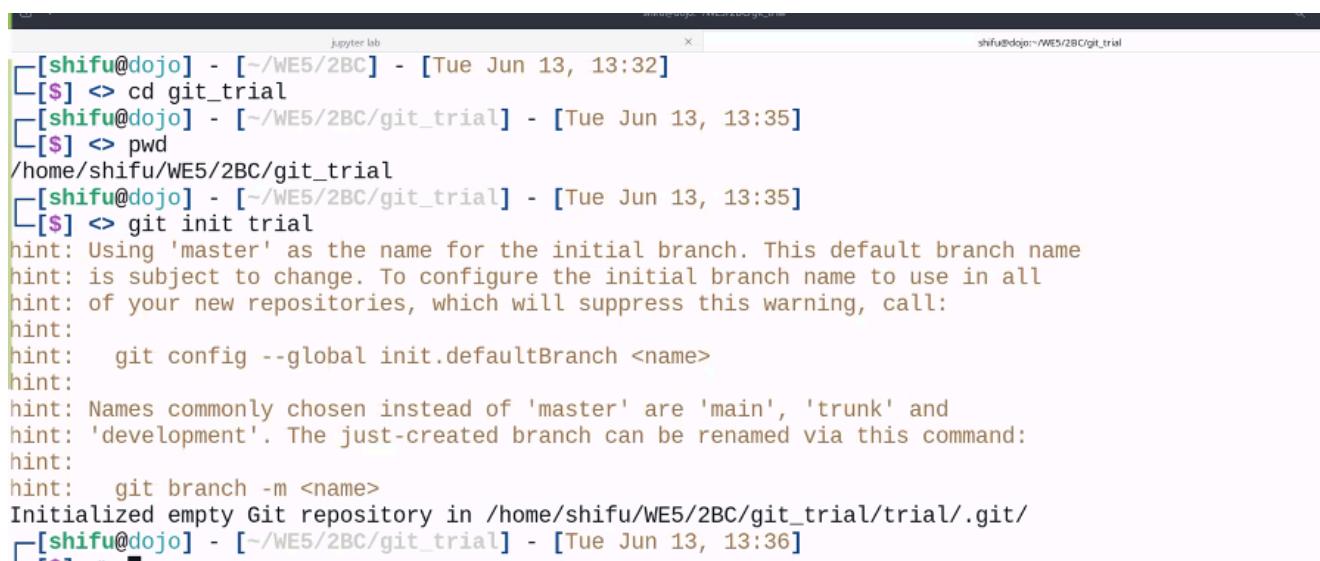
Nano is a nice and simple editor with menus at bottom

Geany is a very nice graphical editor (it's more of a program editor than text editor).

Idea of Administrator in OS	<p>Idea of administrator in all OS Administrator role - good idea to do in two different ids so we don't do damage Administrator is a privilege level</p> <p>The concept of an administrator exists across different operating systems. Assigning a separate user account with administrator privileges can help prevent accidental damage and ensure system security.</p>
Login as Root	<p>Login as root in WSLI if you see a login command. If you're logged as user write SU If no root user , Sudo</p> <p>Logging in as the root user or using "sudo" grants administrator-level access to perform system-level tasks and execute commands with elevated privileges.</p> <p>Root user or sudo</p> <p>Sudo su => now you're root</p>
Shell	<p>The shell is the interface where commands are typed and interacted with in an operating system. In Linux, the Bash shell is commonly used and has extensive documentation available.</p> <p>Where u type your command (where u interact w your os) = shell Most common in linux is bash Read the manual about bash</p>
Basic Commands	<p>Basic commands like "pwd" (print working directory), "cd" (change directory), "mkdir" (make directory), and "rm" (remove) are essential for navigating and manipulating the file system.</p>
Ctrl + C	<p>When a program is misbehaving or not responding, pressing "Ctrl + C" interrupts its execution and terminates the process.</p>

12/06/23	Summary
Asokan	<p>During the session, we discussed the importance of writing exploratory code that runs and can be debugged easily. We emphasised the need to understand the underlying abstractions and implement them in our code to simplify the development process. We explored various concepts such as Latex, Pelican, and Sphinx as tools for typesetting, static site generation, and documentation generation respectively. Additionally, we covered essential commands and concepts related to file systems, text editors, administrator roles, shells, and basic Linux commands. The session concluded with the key takeaway of being diligent in reading documentation, thinking critically, and effectively implementing code.</p>

Day 10 (13/06/23) : SESSION 1

13/06/23	Technical Session 7
Colab Link 1	https://colab.research.google.com/drive/1Xj2tdj6Q8uoooxm9b_A3wxrtMznKlz74
Colab Link 2	https://colab.research.google.com/drive/1zcctnQHjdeKDmKwrsKql2c3216tA9Fjd → Odometer reading assignment ◆ We did in groups of 6, without communicating verbally (communicating digitally)
Git	Git is a version control system that helps in managing and tracking changes to files, making it easier to collaborate and maintain different versions of a project. Git = solves final final 1.0 final 2.0 problem
To utilise Git effectively:	<ul style="list-style-type: none">• Create a directory and initialise it as a Git repository using the command "git init".• Name your branch, which allows you to work on different features or versions independently.• Git has moved away from the terminology of "master" and "slave" configurations for branches, promoting more inclusive language.
	 <p>A terminal window titled 'jupyter lab' showing the creation of a new Git repository. The user runs 'git init trial' in the directory '/home/shifu/WE5/2BC/git_trial'. A warning message appears, stating that 'master' is the default branch name and suggesting to use 'main' instead. The repository is initialized successfully.</p> <pre>[shifu@dojo] - [~/WE5/2BC] - [Tue Jun 13, 13:32] └─[\$] > cd git_trial [shifu@dojo] - [~/WE5/2BC/git_trial] - [Tue Jun 13, 13:35] └─[\$] > pwd /home/shifu/WE5/2BC/git_trial [shifu@dojo] - [~/WE5/2BC/git_trial] - [Tue Jun 13, 13:35] └─[\$] > git init trial hint: Using 'master' as the name for the initial branch. This default branch name hint: is subject to change. To configure the initial branch name to use in all hint: of your new repositories, which will suppress this warning, call: hint: hint: git config --global init.defaultBranch <name> hint: hint: Names commonly chosen instead of 'master' are 'main', 'trunk' and hint: 'development'. The just-created branch can be renamed via this command: hint: hint: git branch -m <name> Initialized empty Git repository in /home/shifu/WE5/2BC/git_trial/.git/ [shifu@dojo] - [~/WE5/2BC/git_trial] - [Tue Jun 13, 13:36] └─[\$] ></pre>
	A new git repository recreated and warning given

```
git config --global init.defaultBranch <name>
```

To change name of branch (master to something else or whatever)

Untracked Files

Untracked files refer to files that are not currently being tracked by Git. These files can be added to the repository using the "git add" command.

Git Commit

Git commits are used to record changes to the repository. Commits serve as checkpoints or milestones in the development process.

Vim Text Editor

:u! = abandon changes and exit the vim
:wq = save and exit

Important points

- If Vim is set as the default editor and you prefer to use Nano, you can set Nano as the default editor by exporting the environment variable "EDITOR=nano".
- Files or directories starting with a dot (.) are considered hidden and are not displayed when using the "ls" command. To show hidden files, use the "ls -A" command.

Git:

- git init - initializes the git repository directory
- git status - gives the status of each file/directory; committed or not
- git clone - creates a copy of repo to local system
- git add - adds the file to the “ready-list” for being committed
- git commit - commits the file
- git push - adds our commits for the git repository
- git pull - whatever others have committed will get copied to local system

We also learned about Haskell, Elixir & Scala.
The language assigned to me was Scala.

13/06/23	Summary
13/06/23	In this session, we explored Git as a solution for version control, highlighting its benefits in managing and tracking changes to files. We learned about creating a Git repository, naming
Asokan Pichai	

Summary

branches, and the shift away from using "master" and "slave" terminologies. Other topics covered include untracked files, committing changes, and using the Vim and Nano editors. The session emphasised the importance of thorough documentation reading, clear thinking, and understanding underlying abstractions to write code effectively. We learned various git commands and we also learnt about Haskell, Scala & Elixir.

Day 11 (14/06/23) : SESSION 1

14/06/23	Technical Session 8
Some Code	<pre>object MultiplesSum { def main(args: Array[String]){ val sum = (1 until 1000).filter(num => num % 3 == 0 num % 5 == 0).sum println(sum) } }</pre> <ul style="list-style-type: none"> • Elixir: <ul style="list-style-type: none"> - I did previous problems in elixir - Prime, collatz, fizzbuzz • Haskell: <ul style="list-style-type: none"> - Lazy functions take only 1 argument - $f a b = a + 2 * b$ -f takes 1 numeric argument and returns a function that takes a numeric argument (for b)
Revisiting Elixir, Haskell & Scala	
Gitlab	<p>Gitlab:</p> <ul style="list-style-type: none"> • We created a git repository • Committed README • Pushed and pulled many commits • Tried to modify the same file and then merged
Raymond Smullyan	Raymond Smullyan is known for his knight and knave riddles.

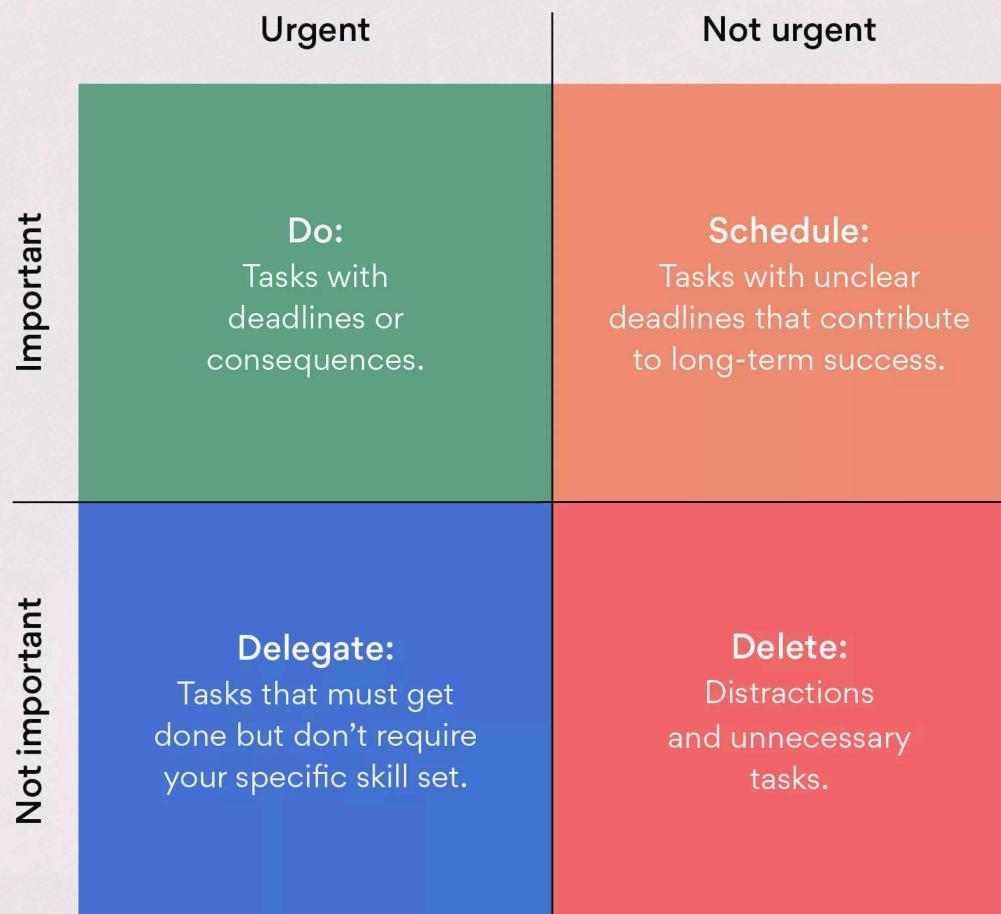
14/06/23	Summary
Asokan Pichai	Revisiting some problems in Elixir & Haskell, using Gitlab to make empty rep , pushing and pulling and committing files.

Day 11 (14/06/23) : SESSION 2

14/06/23	Time Management
WIIFM	<p>Like goal setting , when we try time management, we become extremely idealistic and again end up setting unrealistic expectations from ourselves. It's impossible to do everything in a day.</p> <p>WIIFM : What's in it for me Analysing your day The pareto principle Misunderstandings in time management Prioritising Time & culture Procrastination</p> <p>Do you behave in a way you want to or in a way society thinks you should?</p>
Step 1	Others don't exist. Only you and your priorities exist. Do whatever makes sense to you.
Step 2	<p>Personal time table gives full flexibility and freedom Thus we need to learn how to prioritise.</p>
What does a typical day in your life look like?	<p>6.45 - 7.30 = get up and get ready for college 8.00 am - 6.30pm = in college 6.30pm - 7.00 pm = travel time 7.00 pm - 8.00pm = rest 8.00pm - 9.00 pm = dinner 9.00pm - 10.00pm = scroll insta 10.00 - 12.00 = study/ do college work 12.00 - 6.45am = sleep</p> <p>Either run the day OR the day runs you While time cannot be changed, we can control how we allocate our time.</p>
Pareto Principle	<p>The Pareto Principle suggests that 80% of consequences come from 20% of causes i.e. 20% of sincere effort = 80% work done.</p> <p>Well begun is half done = meaning u have set the tone and pace of your work and you have planned your work timeline.</p>

Why should we manage time?	Save time Reduce stress Function efficiently Increase work Decrease time wastage Control work, not the other way round
Busy vs Productive	Being busy means being occupied with numerous tasks, while being productive means efficiently accomplishing meaningful and impactful work that aligns with your goals and priorities
Urgent vs Important	Urgent tasks require immediate attention due to time sensitivity, while important tasks contribute significantly to long-term goals and priorities. urgent = time matters important = quality matters
Eisenhower Matrix	<p>The Eisenhower Matrix, also known as the Urgent-Important Matrix, is a time management tool that helps prioritise tasks based on their urgency and importance. Here are some notes on the Eisenhower Matrix:</p> <p>The matrix consists of four quadrants: Urgent and Important, Not Urgent but Important, Urgent but Not Important, and Not Urgent and Not Important</p> <ul style="list-style-type: none"> • Tasks in the Urgent and Important quadrant should be dealt with immediately as they have both time sensitivity and significant impact on your goals. • Not Urgent but Important tasks are often long-term goals and strategic planning that should be given dedicated time and attention. • Urgent but Not Important tasks may be delegated or eliminated, as they are time-sensitive but do not contribute significantly to your goals. • Not Urgent and Not Important tasks are time-wasters and should be minimized or eliminated to focus on more meaningful activities. <p>The Eisenhower Matrix helps prioritize tasks effectively, ensuring that important tasks are not overshadowed by urgent but less significant ones. By categorizing tasks based on urgency and importance, individuals can make better decisions about how to allocate their time and resources.</p>

The Eisenhower Matrix



Procrastinator vs Efficient Worker

	Procrastinator	Efficient Worker
	<ul style="list-style-type: none">• Lazy, inattentive• Always late or just on time• Shabby presentation• Bad posture• No designated work area• No schedule	<ul style="list-style-type: none">• Attentive, mentally active• Punctual• Neat and tidy• Good posture• Creates a designated work space• Creates and sticks to timetable

14/06/23	Summary
Kunisha Reddy	<ul style="list-style-type: none"> In this session, we explored the challenges and misconceptions associated with time management. It is common for individuals to become overly idealistic and set unrealistic expectations for themselves, but it's important to recognize that it's impossible to accomplish everything in a day. Personal time tables provide flexibility and freedom, and learning to prioritise tasks effectively is essential. The Pareto Principle, also known as the 80/20 rule, suggests that roughly 80% of consequences come from 20% of causes. By applying this principle, we can focus our sincere efforts on the vital tasks that contribute the most to our goals. We learned that being busy does not necessarily equate to being productive, and it's crucial to differentiate between urgent tasks that require immediate attention and important tasks that contribute significantly to long-term goals. One powerful time management tool we discussed is the Eisenhower Matrix, which helps categorise tasks based on their urgency and importance. This matrix consists of four quadrants: Urgent and Important, Not Urgent but Important, Urgent but Not Important, and Not Urgent and Not Important. By allocating our time and attention effectively using the Eisenhower Matrix, we can ensure that important tasks receive the focus they deserve. In conclusion, effective time management can lead to several benefits, including saving time, reducing stress, functioning efficiently, increasing productivity, and gaining control over our work. By understanding the difference between urgent and important tasks and implementing strategies like the Eisenhower Matrix, we can improve our ability to prioritise effectively and make the most of our time.

Day 12 (15/06/23) : SESSION 1

15/06/23	Technical Session 9
Google Colab Link	https://colab.research.google.com/drive/19SwjpXz3Hp6eG9HClmgdokYRoSj-mea#scrollTo=Aa8QPSDmwHP → History of open source and computers: → Wordle
My wordle colab link	https://colab.research.google.com/drive/1DbtR9gOKHS9dvBVq0OHq6nQVP54ZLLbA#scrollTo=dhKs1VAQa_Mw

15/06/23	Summary
Asokan Pichai	→ Open source software has a rich and fascinating history, rooted in collaboration, transparency, and the sharing of knowledge. We also created a program for Wordle.

Day 13 (16/06/23) : SESSION 1

16/06/23	Technical Session 10
Things Done	<p>-Cows Game in GitLab and presentation - Diamond Cards Game</p> <p>We made a Git project in which we made three folders (source, doc, presentation). The source folder contained the code , the docs folder contained the documentation which we created using sphinx and the presentation folder contained the presentation we made using LaTeX.</p>

16/06/23	Summary
Asokan Pichai	Through the following games, I learnt how to write efficient code & use of GitLab. I also revised my concepts of Sphinx and LaTeX.

Day 14 (17/06/23) : SESSION 1 **Technical Session**

17/06/23	Technical Session 11
Google Colab Link	<p>https://colab.research.google.com/drive/19SwjpXz3Hp6eG9HClmgdokYRoSj-mea#scrollTo=Aa8QPSDmwHP</p> <ul style="list-style-type: none"> ● Dunder methods: Predefined method to give capabilities. ● Self is a reference to the object. ● Inspection shows the representation. To show a particular representation, use the dunder _repr_ method. ● A way to implement printing and representation differences is to use an _str_ dunderline. ● If you don't implement both _repr_ and _str_, only then inspect and print have different

- values.
- `_repr_` compensates for both, but `_str_` doesn't.
 - The Reading class could've been a class in itself because it actually has a unique set of properties. Adding 1 to the reading doesn't necessarily increase the reading by 1; it has its own way of working.
 - Mutator functions ideally should return None.
 - Methods that do not contain self are often class functions.
 - Oops pits design upfront
 - Create a dunder if we want a function to be used only by the programmer.
 - A static method only helps you avoid the self keyword in the method argument. You still need to give the name as the class name.method().
 - All class variables and methods must be used as CLASSNAME.METHOD/VARIABLE
 - Operator Overloading
 - It says that we define some magic functions which are automatically invoked when the particular function is called.
 - After writing a magic function then if we use an operator then it automatically invokes the magic function where it takes the objects used on either side of the operator as the arguments

17/06/23	Summary
Asokan Pichai	<p>Object Oriented Programming is a paradigm in which the structure and design of the code dominates. It makes code organization easier. Here, we use special magic methods aka dunder methods, which help provide special behaviour to the object. We learned about the static method and rebuilt the odometer using OOPS this time. We learned about operator overloading and functions like <code>isinstance()</code>.</p>

Day 14 (17/06/23) : SESSION 2 **Corporate Skills Session**

17/06/23	Learning Through Games
Game 1	<p>Chinese whisper with actions:</p> <ul style="list-style-type: none"> • Everyone stood in a line, first person acts out a word in one action, it passes to the next person till the last person • Just one small change in action affected the whole thing a lot <p>Lesson : While communicating, our words must be precise, concise and not easily misinterpretable</p> <p>Effective communication requires using clear, concise language that minimizes ambiguity and ensures the intended message is easily understood, leaving little room for misinterpretation.</p>

	<p>Game 2</p> <p>2 truths 1 lie</p> <ul style="list-style-type: none"> • Activity done by all groups to get to know the cohort members better • Just for fun <p>Game 3</p> <p>Nonsense sentence</p> <ul style="list-style-type: none"> • Make sentences in the format: “name is/was verb prep name’s adj thing” • All sentences do not make sense <p>Lesson: Just because something is grammatically correct, doesn't mean that it is meaningful</p>
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17/06/23	Summary
Kunisha Reddy	In this session, we played games like Chinese whispers with actions, 2 truths 1 lie, and created nonsensical sentences. Through these activities, we learned that it's important to communicate clearly and use words that make sense. We also discovered that just because something is grammatically correct doesn't mean it has meaning. Overall, we explored the importance of effective and meaningful communication.

WEEK 3 OVERVIEW

Week 2	Date	Presenter	Topics Discussed	Takeaways
Day 15	19/06/23 (Monday)	Asokan Pichai	How to give a presentation , Futoshiki Game	Good presentations are important in the workplace because they effectively convey information, ideas, and data to an audience. They help to engage and persuade others, facilitate understanding, and drive action
Day 16	20/06/23 (Tuesday)	Asokan Pichai	Presentation on our Project Idea	We were able to learn how to give proper presentations and effectively presented our ideas
Day 17	21/06/23 (Wednesday)	Asokan Pichai	Presentation on our Project Idea	We were able to learn how to give proper presentations and effectively presented our ideas
		Kunisha Reddy	Presentations	We learned how to give proper presentations as they help in effective conveyance of information.
Day 18	22/06/23 (Thursday)	Asokan Pichai	-	-
Day 19	23/06/23 (Friday)	Asokan Pichai	-	-

Day 15 (19/06/23) : SESSION 1

19/06/23	Technical Session 12
How to give good presentation	<ul style="list-style-type: none">● How to give a good presentation<ul style="list-style-type: none">○ Use sans-serif (provides more white space)○ Don't use all caps○ Say something concisely○ If need to do in 5 mins, say enough points that are needed for 5 mins only; if something is important but not important enough for 5 mins, omit it○ Good fish sold here (good slides must stink)○ 40/32 heading, 36 body, 32 next level (no more levels after this)○ 5x5x5 / 3x3x3 rule: 5 lines per slide, 5 words per line, 5 mins per slide○ Know the audience○ Know the geometry of the presentation hall○ Images are worth a 1000 words, but not all are, choose carefully○ Videos and audios, use them carefully
Drive link to Futoshiki game	https://drive.google.com/drive/folders/1ICMNCmRZuD50a2_ga1CRRRihwkhFV9SV
Futoshiki	<ul style="list-style-type: none">● Futoshiki:<ul style="list-style-type: none">○ We worked all day to write a code to make computer solve a Futoshiki problem○ At first we tried normally, later we wrote using class

19/06/23	Summary
Asokan Pichai	Good presentations are important at work because they help us share information and ideas effectively. They make it easier for others to understand and be convinced of our message. Presentations also show that we are professional and capable, which can boost our credibility and help us succeed in our work. We learned how to give good presentations and worked on the Futoshiki problem.

Day 17 (21/06/23) : SESSION 2
Corporate Skills Session

19/06/23	Technical Session 12
How to give good presentation	<ul style="list-style-type: none"> ● Have a plan of action ● State your purpose <ul style="list-style-type: none"> ○ I want to learn ____ through ____ ○ Problem statement ○ Problem description ● Tone (of voice) and tenor (emotion behind message) <ul style="list-style-type: none"> ○ Inform, no need to justify ○ Tenor must be formal, respect colleagues ● When you panic <ul style="list-style-type: none"> ○ Purpose Audience Need Information Communication ● You don't need to impress the audience, you just need to inform and find the right voice to do it, your work will speak for itself ● Brevity in speech <ul style="list-style-type: none"> ○ Brief, give context (no need to reiterate) ○ Don't over explain, no fillers ○ Record yourself ● Presenting work <ul style="list-style-type: none"> ○ Collect data ○ Sort using purpose, metric ○ Categorize ● Representing data <ul style="list-style-type: none"> ○ Not all sorted data is presentable ○ Use visual aids ○ There must be logical flow ● Turning info into insights <ul style="list-style-type: none"> ○ Measure the right things ○ There's no one-size-fits-all solution ○ Answer your audiences' questions ○ Insights is intersection of data, context, action ○ We can't predict what data can or can't be useful
19/06/23	Summary
Asokan Pichai	<p>In this session, we learned about the importance of having a plan and clear purpose in presentations. We discussed the need to inform and communicate effectively without trying to impress the audience. Brevity and avoiding over-explanation were highlighted, along with the use of visual aids and maintaining a logical flow. We also explored the process of turning information into insights and emphasized the importance of measuring the right things. Overall, the session emphasized the need for purposeful and audience-focused presentations that provide valuable information and insights.</p>

Project Idea : EmotiCare

Bootcamp Project 1

Project Name:

EmotiCare

Team Members:

Sanya Garg [@sanya.gargg](https://twitter.com/sanya.garg)

Neze Papreja [@NezeP](https://twitter.com/NezeP)

Anvaya Solanki [@anvaya_solanki](https://twitter.com/anvaya_solanki)

Problem Statement:

Suicides take a high toll. Over 800,000 people die by suicide every year and it is the second leading cause of death in 15-29-year-olds. The devastating impact of suicide reaches far beyond the individual, leaving family, friends, and communities shattered. Raising awareness, promoting understanding, and fostering a culture of empathy are crucial steps towards addressing this global mental health crisis.

Solution:

Our app aims to address the above issue and is packed full of useful information and tools to help people dealing with suicidal thoughts.

Features:

- Therapy section
- Predictive model to detect suicidal intent using functional Chat bot
- Depression detection questionnaire
- Suicide prevention helpline
- Myths pertaining suicide
- References for content and online resources for further information (using user's location to find the nearest help centre)
- Recommended using calming/soothing strategies to help during times of crisis

References:

- Reaching out to mental health experts on LinkedIn.
- Tests and questionnaires like NHAI, PHQ-9, CES-D, Beck Scale for Suicide

Ideation, Columbia Suicide Severity Rating Scale.

- Research papers

Tech Stack:

- Python
- Backend
 - Mysql
- App development
 - Flutter/ Android Studio

Audience:

People struggling with mental health.

Future Scope:

- Making it more inclusive for differently abled people.
 - Extending it to desktop and android/iOS applications.
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