WEEK 1

1. Discuss success and failure stories

	SUCCESSFUL	CHALLENGED	FAILED
Large	8%	26%	41%
Medium	9%	26%	31%
Moderate	21%	32%	17%
Small	62%	16%	11%

2. Presentation of collected case studies

a) The Ariane 5 Disaster

3. **Ariane 5**. On June 4th, 1996, the very first **Ariane 5 rocket** ignited its engines and began speeding away from the coast of French Guiana. ...
4. What went wrong? The fault was quickly identified as a **software** bug in the **rocket's** Inertial Reference System. ...
5. Not enough space to reach space.

The Ariane 5 Disaster

Software failure

- Software failure occurred when an attempt to convert a 64-bit floating point number to a signed 16-bit integer caused the number to overflow.
- There was no exception handler associated with the conversion so the system exception management facilities were invoked. These shut down the software.
- The backup software was a copy and behaved in exactly the same way.

b) The Patriot Missile Failure

The Patriot Missile Failure

c) Mars pathfinder

- On September 23, 1999, NASA lost the $125 million Mars orbiter spacecraft because one engineering team used metric units while another used English units leading to a navigation fiasco, causing it to burn in the atmosphere.

Mars pathfinder

- Design flaws or inaccurate modeling Mars pathfinder mission landed flawlessly on the Martial surface on July 4, However, later its communication failed due to a design flaw in the real-time embedded software kernel VxWorks.
- The problem was later diagnosed to be caused due to priority inversion, when a medium priority task could preempt a high priority one.

d). FBI Virtual Case File (or VCF)

- **Virtual Case File** (or **VCF**) was a software application developed by the United States Federal Bureau of Investigation (FBI) between 2000 and 2005.

- The project was officially abandoned in April 2005, while still in development stage and cost the federal government nearly $170 million.
- In 2006, the Washington Post wrote "In a 318-page report, completed in January 2005 and obtained by The Post under the Freedom of Information Act, [the Aerospace Corporation] said the SAIC software was incomplete, inadequate and so poorly designed that it would be essentially unusable under real-world conditions.
- Even in rudimentary tests, the system did not comply with basic requirements, the report said.
- It did not include network-management or archiving systems—a failing that would put crucial law enforcement and national security data at risk"

Reasons for software failure:

- Lack of user participation
- Changing requirements
- Unrealistic or unarticulated project goals
- Inaccurate estimates of needed resources
- Badly defined system requirements
- Poor reporting of the project's status
- Lack of resources
- Unmanaged risks
- Poor communication among customers, developers, and users
- Use of immature technology
- Inability to handle the project's complexity
- Sloppy development practices
- Poor Project Management
- Stakeholder politics
- Lack of Stakeholder involvement
- Commercial pressures

3. Importance of ethical practices:

- code of ethics specifies various rules and regulations of conduct that the members of the team must adhere to.
- It sets forth the values, principles, and standards that guide the testers to perform their tasks appropriately and helps them use the information they have in an ethical and appropriate manner.
- Code of ethics, in short defines the acceptance of responsibility by the software testers, while keeping the best interest of their clients as priority.

  Types of Code of Ethics in Testing:
- While performing software testing, testers should commit themselves in making analysis, finding defects, monitoring the process of testing, reporting defects & bugs, maintaining the software, among other things in a respected and beneficial manner.

- Moreover, they should consider the safety and welfare of the public and the client as well as should adhere to the following code of ethics to ensure the works credibility. The various code of ethics are:
- **Public:** During the process of software development and testing, the public interest and benefit should be considered before corporate and personal gain. They should consistently act in the interest of the public.
- **Client & Employer:** Apart from public interest, the testers should consider the interest of their client and employer while conducting tests on the software. They should act according to the requirements of their clients and should fulfill all their needs.
- **Product:** The most important factor that needs consideration during the process of software testing is the product itself.
- The testers should perform their tasks while ensuring that the deliverable is of best quality and has exceptional effectiveness. Also, make sure that all deliverables on the product are in compliance with the stated standards.
- **Judgement:** The testes should maintain integrity and independence while making judgments regarding the process of testing or any other aspects related to it.
- **Profession:** The team of testers should follow the set f values, principles, and standards and advance the integrity of their profession.
- **Management:** Here, the team managers and leads should take the responsibility and ethical steps to manage the process of software testing, development, and maintenance. This will help them avoid any confusion as well as allow them to test each component of the software accurately.

Why is Code of Ethics Important?

- It protects the interests of consumers and offers them assurance that they are not being misguided or misled by false promises and advertisements.
- Helps firms and organizations in obeying the law and treating people honestly and fairly.
- Clarifies organization's missions, values, and principles.
- Promotes employment ethics, such as security, promotions, health and safe working condition, etc.
- Allows one to create a professional environment wherein ethical behavior is a norm.
- Serves as a guide or reminder of how to perform tasks as well as the way one should act in a particular situation.
- Can indicate that individuals are seriously concerned about responsible and professional conduct.
- It is a central guide and reference for employers.
- Prevents unjust treatment.
- Brings out best in people as well as high standards in organizations.

3. Enact the importance of ethical practices

Ethics provide the moral compass by which we live our lives and make decisions – 'doing the right thing' because it's the right thing to do.

The way we make decisions is important for organization's because the wrong decisions can have a significant impact on people's lives and the reputation of organizations. So, when we make decisions based on good principles, and live by good values, we can improve the lives of others and the experiences they have at work.

Ethical practice standards

Each standard progresses through four levels of impact;

(1) Foundation level

At this level you will:

- Take responsibility for your actions
- Act consistently with relevant regulation and law
- Handle personal data and information in a professional manner
- Demonstrate honesty in dealings with others

(2) Associate level

At this level you will:

- Make responsible choices about your work, applying professional principles and values
- Consider the purpose and implications of actions, decisions and people practices for all stakeholders
- Provide explanations and reasons for the choices you make and the advice you provide
- Demonstrate professionalism and consistency in what you say and do in order to build trust

(3) Chartered Member level

At this level you will:

- Make responsible decisions by considering different ethical perspectives, and finding the best possible way forward for all stakeholders
- Coach and influence managers and leaders to consider the implications of their decisions on stakeholders
- Challenge decisions and actions which are not ethical, explaining the organization risks
- Encourage transparency in decision-making and communication where possible

(4) Chartered Fellow level

At this level you will:

- Make responsible decisions by balancing different ethical perspectives, and shape how ethics inform wider decision-making and governance
- Coach and influence senior leaders to consider the ethical impact of their decisions in the short and long-term
- Take a visible lead in solving ethical dilemmas, considering how they will play out beyond the organization
- Surface the unsaid in leadership discussions to enable transparency and improved decision-making

WEEK 2

1: Case study to understand the SDLC

Abstract:

A software development life cycle is commonly used software development method in software engineering, or SDLC is a process used to develop software. All the SDLC models software should be developed and delivered slow and it take time to implement software. In order to overcome this problem different SDLC model is proposed by modifying the traditional incremental SDLC model. This paper presents comparative analysis of the two different process models in SDLC which are proposed in literature to achieve development and delivery of software. All the two process models compared Agile process model is the best suited process model for Software development life.

Software Development Life Cycle Process

SDLC is a process that defines the various stages involved in the development of software for delivering a high-quality product. SDLC stages cover the complete life cycle of a software i.e. from inception to retirement of the product.

Adhering to the SDLC process leads to the development of the software in a systematic and disciplined manner.

Purpose:

Purpose of SDLC is to deliver a high-quality product which is as per the customer's requirement.

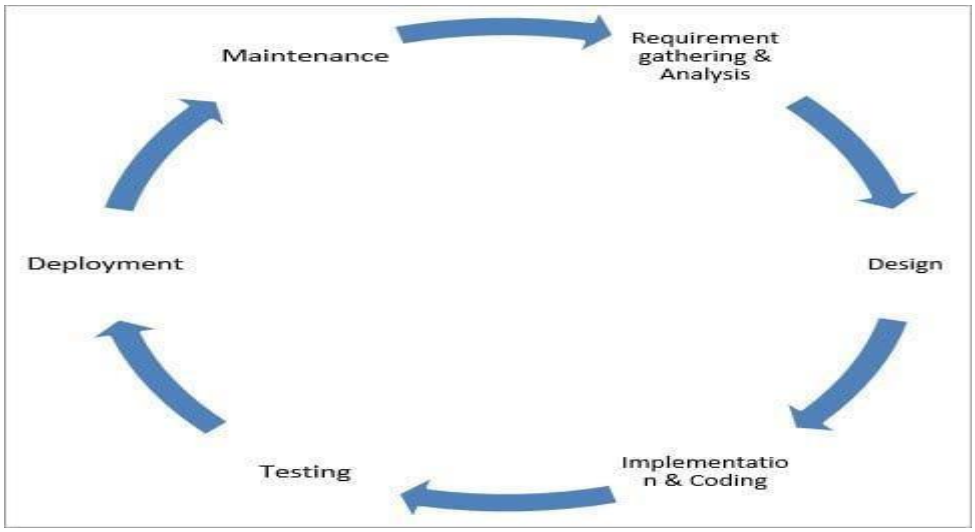
SDLC has defined its phases as, Requirement gathering, Designing, Coding, Testing, and Maintenance. It is important to adhere to the phases to provide the Product in a systematic manner.

For Example, A software has to be developed and a team is divided to work on a feature of the product and is allowed to work as they want. One of the developers decides to design first whereas the other decides to code first and the other on the documentation part. This will lead to project failure because of which it is necessary to have a good knowledge and understanding among the team members to deliver an expected product.

SDLC Cycle

SDLC Cycle represents the process of developing software.

Below is the diagrammatic representation of the SDLC cycle:



SDLC Phases

Given below are the various phases:

- Requirement gathering and analysis
- Design
- Implementation or coding
- Testing
- Deployment
- Maintenance

#1) Requirement Gathering and Analysis

During this phase, all the relevant information is collected from the customer to develop a product as per their expectation. Any ambiguities must be resolved in this phase only.

Business analyst and Project Manager set up a meeting with the customer to gather all the information like what the customer wants to build, who will be the end-user, what is the purpose of the product. Before building a product a core understanding or knowledge of the product is very important.

For Example, A customer wants to have an application which involves money transactions. In this case, the requirement has to be clear like what kind of transactions will be done, how it will be done, in which currency it will be done, etc.

Once the requirement gathering is done, an analysis is done to check the feasibility of the development of a product. In case of any ambiguity, a call is set up for further discussion.

Once the requirement is clearly understood, the SRS (Software Requirement Specification) document is created. This document should be thoroughly understood by the developers and also should be reviewed by the customer for future reference.

#2) Design

In this phase, the requirement gathered in the SRS document is used as an input and software architecture that is used for implementing system development is derived.

#3) Implementation or Coding

Implementation/Coding starts once the developer gets the Design document. The Software design is translated into source code. All the components of the software are implemented in this phase.

#4) Testing

Testing starts once the coding is complete and the modules are released for testing. In this phase, the developed software is tested thoroughly and any defects found are assigned to developers to get them fixed.

Retesting, regression testing is done until the point at which the software is as per the customer's expectation. Testers refer SRS document to make sure that the software is as per the customer's standard.

#5) Deployment

Once the product is tested, it is deployed in the production environment or first UAT (User Acceptance testing) is done depending on the customer expectation.

In the case of UAT, a replica of the production environment is created and the customer along with the developers does the testing. If the customer finds the application as expected, then sign off is provided by the customer to go live.

#6) Maintenance

After the deployment of a product on the production environment, maintenance of the product i.e. if any issue comes up and needs to be fixed or any enhancement is to be done is taken care by the developers.

Software Development Life Cycle Models

A software life cycle model is a descriptive representation of the software development cycle. SDLC models might have a different approach but the basic phases and activity remain the same for all the models.

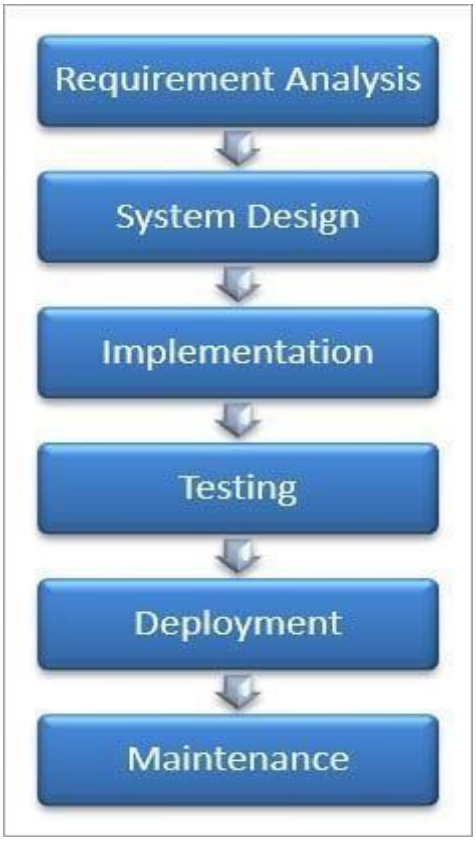
#1) Waterfall Model

Waterfall model is the very first model that is used in SDLC. It is also known as the linear sequential model.

In this model, the outcome of one phase is the input for the next phase. Development of the next phase starts only when the previous phase is complete.

- First, Requirement gathering and analysis is done. Once the requirement is freeze then only the System Design can start. Herein, the SRS document created is the output for the Requirement phase and it acts as an input for the System Design.
- In System Design Software architecture and Design, documents which act as an input for the next phase are created i.e. Implementation and coding.

- In the Implementation phase, coding is done and the software developed is the input for the next phase i.e. testing.
- In the testing phase, the developed code is tested thoroughly to detect the defects in the software. Defects are logged into the defect tracking tool and are retested once fixed. Bug logging, Retest, Regression testing goes on until the time the software is in go-live state.
- In the Deployment phase, the developed code is moved into production after the sign off is given by the customer.
- Any issues in the production environment are resolved by the developers which come under maintenance.



Advantages of the Waterfall Model:

- Waterfall model is the simple model which can be easily understood and is the one in which all the phases are done step by step.
- Deliverables of each phase are well defined, and this leads to no complexity and makes the project easily manageable.

Disadvantages of Waterfall model:

- Waterfall model is time-consuming & cannot be used in the short duration projects as in this model a new phase cannot be started until the ongoing phase is completed.
- Waterfall model cannot be used for the projects which have uncertain requirement or wherein the requirement keeps on changing as this model expects the requirement to be clear in the requirement gathering and analysis phase itself and any change in the later stages would lead to cost higher as the changes would be required in all the phases.

Iterative Incremental Model

The iterative incremental model divides the product into small chunks.

For Example, Feature to be developed in the iteration is decided and implemented. Each iteration goes through the phases namely Requirement Analysis, Designing, Coding, and Testing. Detailed planning is not required in iterations.

Once the iteration is completed, a product is verified and is delivered to the customer for their evaluation and feedback. Customer's feedback is implemented in the next iteration along with the newly added feature.

Hence, the product increments in terms of features and once the iterations are completed the final build holds all the features of the product.

Phases of Iterative & Incremental Development Model:

- Inception phase
- Elaboration Phase
- Construction Phase
- Transition Phase **(i) Inception Phase:**

Inception phase includes the requirement and scope of the Project.

(ii) Elaboration Phase: In the elaboration phase, the working architecture of a product is delivered which covers the risk identified in the inception phase and also fulfills the non-functional requirements.

(iii) Construction Phase: In the Construction phase, the architecture is filled in with the code which is ready to be deployed and is created through analysis, designing, implementation, and testing of the functional requirement.

(iv) Transition Phase: In the Transition Phase, the product is deployed in the Production environment.

Advantages of Iterative & Incremental Model:

- Any change in the requirement can be easily done and would not cost as there is a scope of incorporating the new requirement in the next iteration.
- Risk is analyzed & identified in the iterations.
- Defects are detected at an early stage.
- As the product is divided into smaller chunks it is easy to manage the product.

Disadvantages of Iterative & Incremental Model:

- Complete requirement and understanding of a product are required to break down and build incrementally.

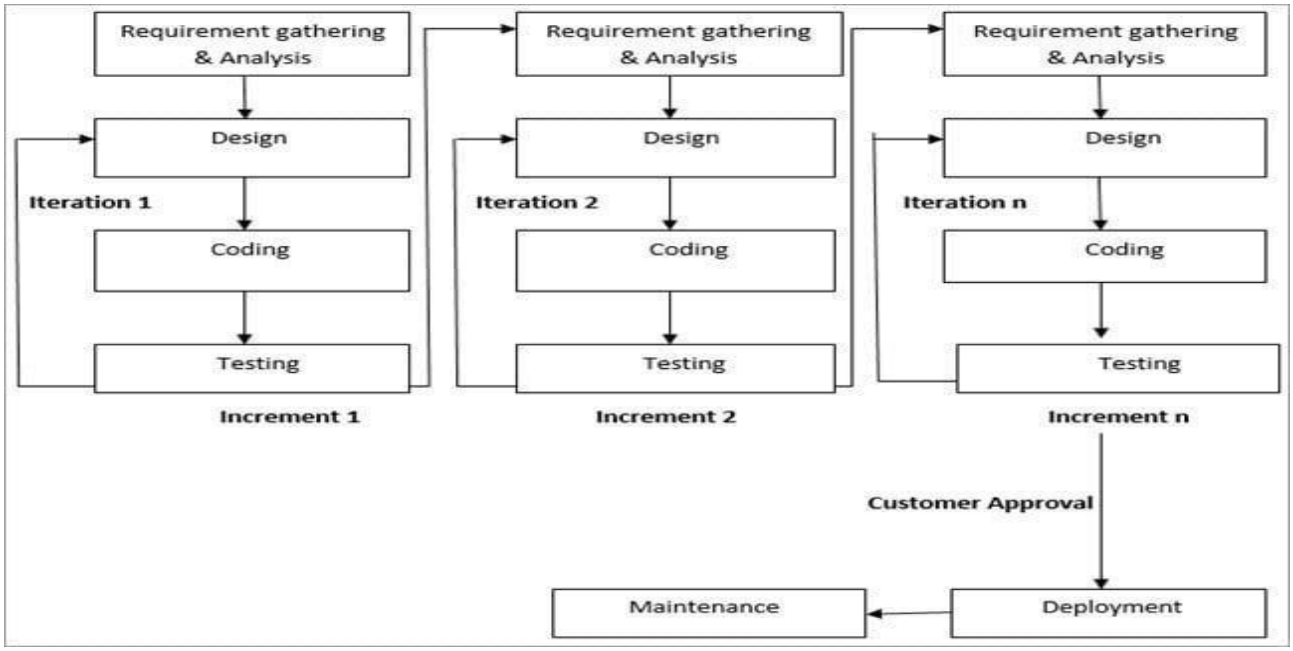
Agile Model

Agile Model is a combination of the Iterative and incremental model. This model focuses more on flexibility while developing a product rather than on the requirement.

In Agile, a product is broken into small incremental builds. It is not developed as a complete product in one go. Each build increments in terms of features. The next build is built on previous functionality.

In agile iterations are termed as sprints. Each sprint lasts for2-4 weeks. At the end of each sprint, the product owner verifies the product and after his approval, it is delivered to the customer.

Customer feedback is taken for improvement and his suggestions and enhancement are worked on in the next sprint. Testing is done in each sprint to minimize the risk of any failures.



Advantages of Agile Model:

- It allows more flexibility to adapt to the changes.
- The new feature can be added easily.
- Customer satisfaction as the feedback and suggestions are taken at every stage.

Disadvantages:

- Lack of documentation.
- Agile needs experienced and highly skilled resources.
- If a customer is not clear about how exactly they want the product to be, then the project would fail.

Conclusion

Adherence to a suitable life cycle is very important, for the successful completion of the Project. This, in turn, makes the management easier.

Different Software Development Life Cycle models have their own Pros and Cons. The best model for any Project can be determined by the factors like Requirement (whether it is clear or unclear), System Complexity, Size of the Project, Cost, Skill limitation, etc.

2. Game to understand the agile process: Morning wakes up game

"WAKE UP IN THE MORNING" GAME A QUICK

FUN WAY TO UNDSTAND THE BASIC CONCEPT OF ITERATIVE INCREMENTAL DEVLOPM

UNDERSTAND THE BASIC CONCEPT OF ITERATIVE INCREMENTAL DEVELOPMENT

"Wake up in the morning" Game – A quick fun way to understand the basic concept of Iterative Incremental Development

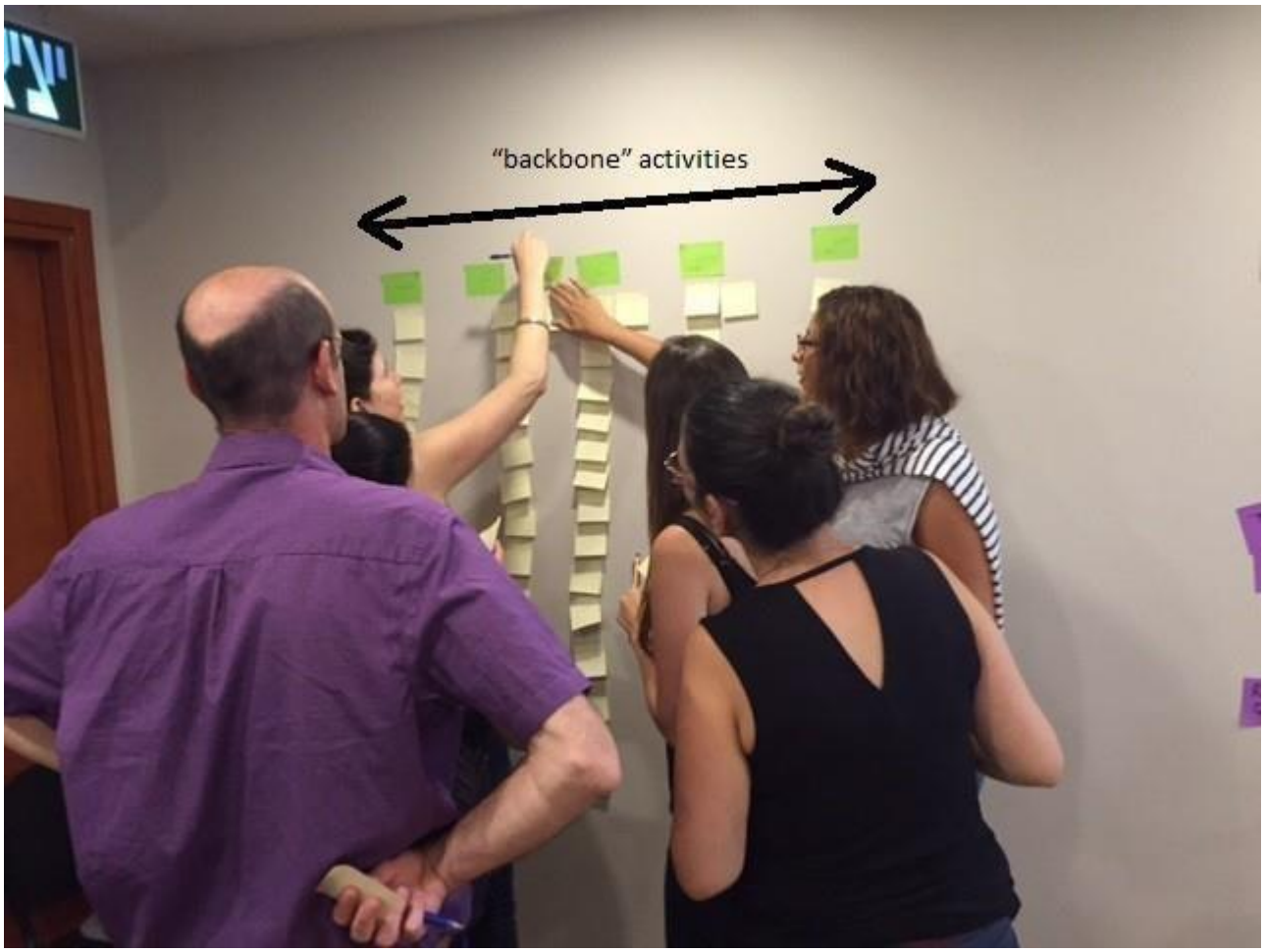
A fundamental aspect of Agility is incremental and iterative development. It's so basic that when introducing Agile you usually mention this idea in the first 5 minutes. The core understanding that moving to small batches significantly improves speed, quality and risk management, helps you move from an all or nothing approach to a world of options.

Step 1 – Individually list the morning activities (5 minutes): I ask people to write on sticky notes the activities they did from the moment they woke up until they reached the office, as many as they can.

It should be one activity in each sticky note and should be done individually (unless people woke up together that morning …)

Step 2 – Collaboratively grouping the activities (5 minutes) :
I choose a space in the room with enough place on the wall. In teams of up to 7 people I ask people to take their notes and group them together under common topic that will be their title. It's a group of activities with a common goal, for example, washing and refreshing can include activities such as brushing the teeth, taking a shower, going to the toilets, etc.

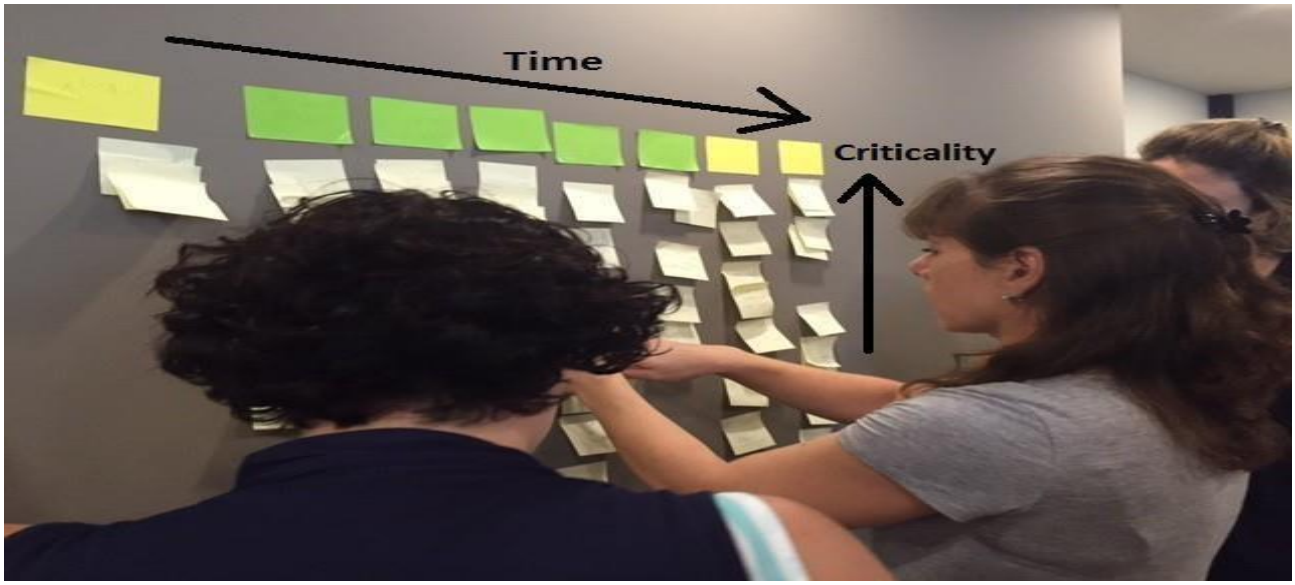
Each team should place their sticky notes on the wall and organize them in the groups with the topic as their title. The titles are the "backbone" activities.



Step 3 – Order the group of activities by time (3 minutes):

I ask the teams to order the activities from left to right sequentially, in a way that the order makes sense as a story with a beginning, a middle and an end (for example: wake-up, washing, breakfast, home arrangements , kids, travel, reach the office..).

Step 4 – Order the activities by criticality (5 minutes):
Now I ask the teams to prioritize the activities in each group by criticality ordered from top to bottom, so that important activities are on top.



Briefing on this step:

Prioritizing is difficult when there are no guidelines, such as a certain goal we wish to achieve with our product or a certain market segment or specific persona. For example, if our target customers are single men under 25 with no kids, or married women with 3 kids over 30 — the priorities will probably be different, different activities will be

considered critical for each target customer. Define the goal/persona so it is easier to determine the priorities.

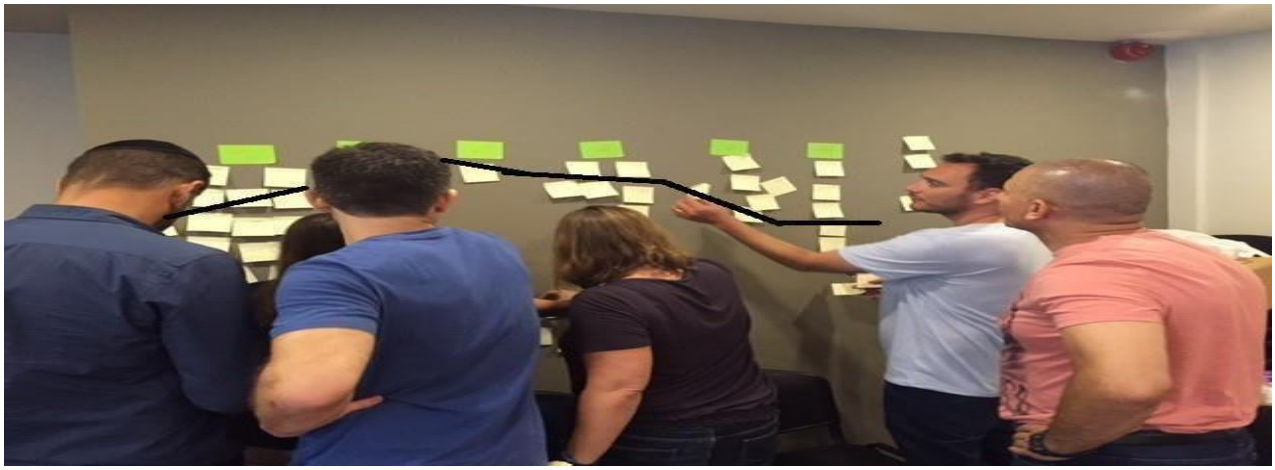
Step 5 – Drama! (5 minutes):
And now for the drama.. I tell the group:

Imagine you had a very important meeting in the morning that you just cannot miss or be late to. Unfortunately, the alarm clock didn't do its job and you woke up late and have only 15 minutes to get out of the house!

What do you do? Which part of the morning routine will you drop to fit in the minimal time you have?

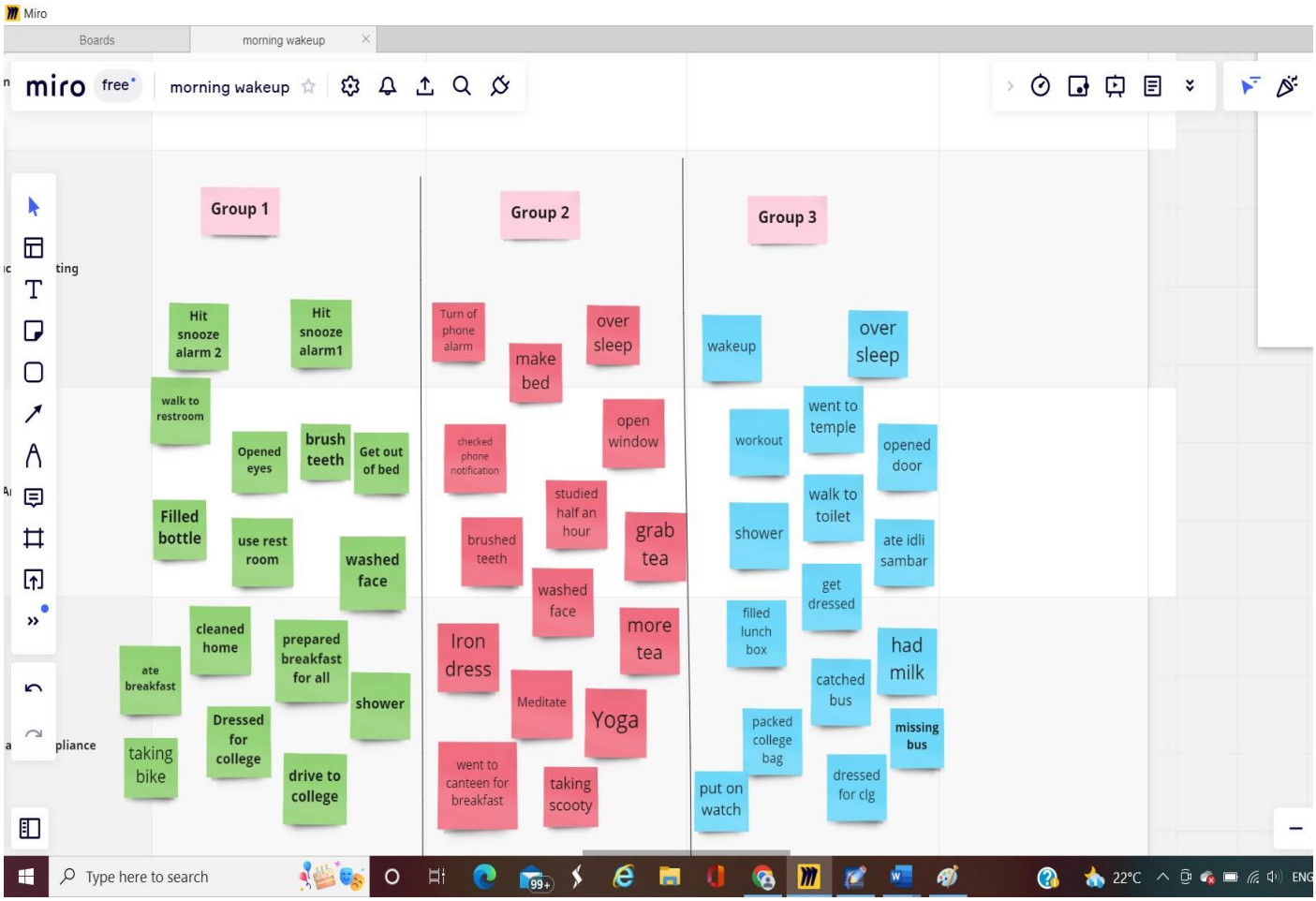
Now I ask the team to draw a horizontal line through the activities so that all the activities they choose to do in such a morning are above the line and all the rest under the line.

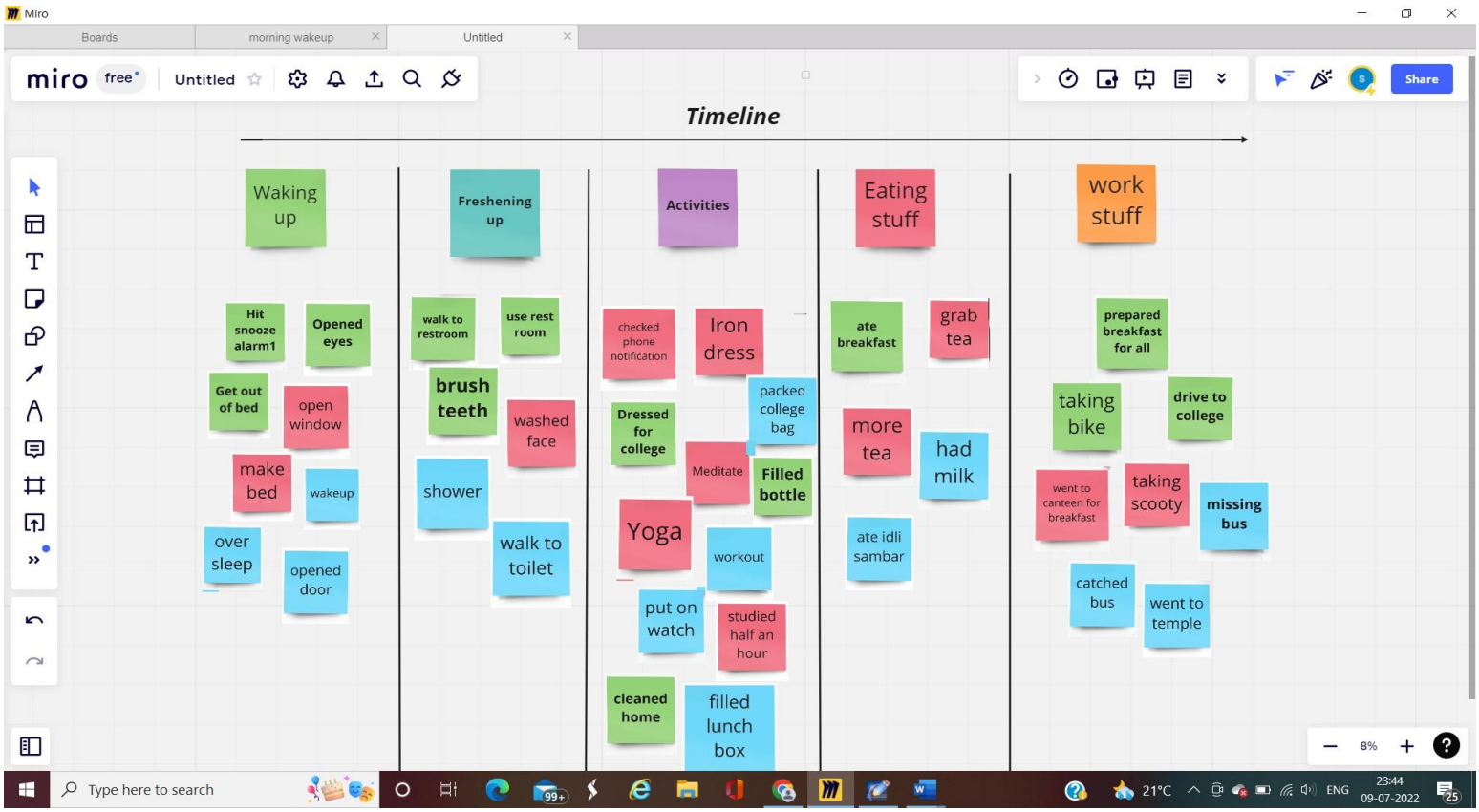
They need to reach the office safely and be on-time with the minimum activities as possible.



Final Briefing:
The exercise demonstrates the following important concepts:

- With the constraint of time our aim is still to realize the full “value” of getting on time to the office. In the process of minimizing the activities, we removed many of them in each step and left the process very thin and lean but still end-to-end.
- Since we have a constraint of time, as we eventually want to be fast which means minimize the time to reach value. in many cases we will go too deep in a single step and not realize the full end-to-end value. in this exercise we demonstrate how it should be done across the map and how in every increment we build we have the full end-to-end.
- We don’t invest equally in each step – in some steps we left only one activity and in some we left more, depending on the step. Some steps where even entirely removed.
- Choosing the depth of each step is easier when the full picture is available since the alternatives are visible.
- Focusing on a single activity but in the context of end-to-end value helps development teams better understand the scope of the requirement. For example, preparing breakfast in the context of getting out of the house in 15 minutes is totally different from preparing breakfast for the family on a vacation morning. Communicating effectively the context helps to make the scope more precise and to trim the less important parts of the scope.




Miro
Boards
morning wakeup
Untitled
miro
free
Untitled
Share
Timeline
Waking up
Freshening up
Activities
Eating stuff
work stuff
Hit snooze alarm1
Opened eyes
Get out of bed
open window
make bed
wakeup
over sleep
opened door
walk to restroom
use rest room
brush teeth
washed face
shower
walk to toilet
checked phone notification
Iron dress
Dressed for college
packed college bag
Meditate
Filled bottle
Yoga
workout
put on watch
studied half an hour
cleaned home
filled lunch box
ate breakfast
grab tea
more tea
had milk
ate idli sambar
prepared breakfast for all
taking bike
drive to college
went to canteen for breakfast
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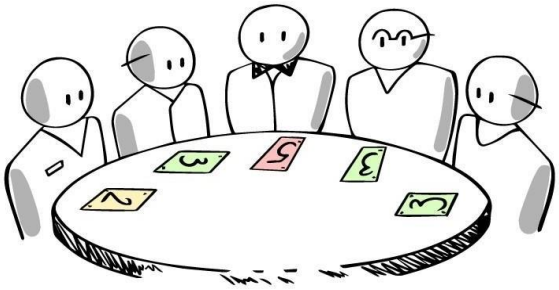
The marshmallow changes:

White Elephant Sizing – Agile Estimation Method



Agile teams need to estimate the size of their stories or product backlog items. The goal of the **White Elephant Game** is to get a quick estimate of the relative size of an agile project and the size of the individual stories before the project starts.

It gives opportunity to everyone for their voices are heard, and everyone contributes equally. Estimation is a key component of **project realization.**

It projects the **cost for Stakeholders, duration of the project for Product Owners, size or complexity for the developer.**

The white elephant game attempts to do this in a way that can be reliably fit into a given amount of time and keeps the focus on getting the overall estimation done rather than disagreements on the sizing of particular stories.There are significant difference between **White Elephant Sizing Game and Planing Poker**, so evaluate which one is better for your team.

- **Planning Poker – Agile Estimation Method**
- **Bucket System – Agile Estimation Method**
- **Affinity Estimation – Agile Estimation Method**
- **Dot Voting – Agile Estimation Method**
- **White Elephant Sizing – Agile Estimation Method**

White Elephant (**Procedure)**

- A board (whiteboard or White paper chart or something like that) – divided into 5 columns(XS, S, M, L, XL) or divide it into 3 (S,M.L) columns or start with three columns and as per the need for more granularity add additional columns or divided by Fibonacci

  Sequence for estimation 1, 2, 3, 5, 8…
- Timer or stopwatch
- A set of prepared user stories – Print out/Write down all Product Backlog Items or user stories on separate cards. It can be just the summary or summary with brief description of user stories which is enough for the team to understand.
- A set of cards Tape or sticky note

White Elephant Rules

Team stand-up in a semi circle facing their sizing or white board.

Shuffle a deck of user story cards and put those with face down on a table just in-front of the board.

Start the timer which is the signal for the first member to perform the following steps:

- *Take a card from the top of the deck read it out and place in one of the columns (a.k.a **propose the estimation** for that item).*

OR

- *Take one of the cards already placed on the board and move to another column (a.k.a **change the estimate**). If someone is moving card, he/she need to provide some reasons for doing it.*

OR

- *Pass, if all the stories are placed and they are satisfied with the story placement*

The first person has only option to take the card from table and place it in the board as there are no other cards in the board. Once the action is done team member goes to the end of the queue and it is the next person turn. Repeat the above process for the other team members until there are no more cards to pick from, he/she can either take a new story or re-estimate that story.

Once all the stories are placed on the board, the team inspects the board and each member can propose to move one of the stories' place. They can, later on, discuss it with the product owner and ask questions that will help them estimate those stories together.

The Easter-egg challenge

Step out of your comfort zone of technical discussions, data analysis and user story writing, and step into the world of easter egg painting. Together with the Product Owners, Product managers and Technical team leads, we focussed today on something different, that in the end, influences everything we do and stand for.

A challenge, inspired by this article, that on first sight looks fun and irrelevant, represents in many ways how teams operate, and how that is impacting their productivity. While painting eggs, cutting them out, checking the quality of the delivered product seems extremely easy, the reality shows that even supposedly easy tasks can become difficult and hectic when the participant's mindset is not right.

The challenge is simple:

Groups of 4 or 5 individuals per team

- A bunch of papers with unpainted easter eggs on them
- Several boxes of crayons and a some scissors
- Requirements from the business (preferably difficult to understand)

During the challenge the teams will be instructed to deliver the painted eggs according to the pre-defined requirements, on time, on quality and on budget (let's just imagine there was a budget). The team will get 2 attempts in which 2 different delivery approaches will be used, where the first is based on Waterfall, and the second simulates a more Agile approach.

While the core learnings of the challenge can be found in that an Agile mindset helps you improve productivity (spoiler alert!), the challenge also shows the participants other relevant daily work problems that, if not responded to well, can seriously impact your product delivery.

3.2.1, GO!

Step 1: Start planning your work, appoint who paints, who has the best scissoring skills and who is responsible for Quality Assurance. The teams have 3 minutes to decide who does what. **(3 minutes time)**

Simulating the first phase of development using a waterfall approach, in which you would write all requirements, and create the documentation for the entire project.

Step 2: Then it's time to start painting, which is a 6 minute job. No iterations, just start doing your job, and deliver the project all at once after the time passes.

(6 minute time)

Step 3: After all, all requirements are known, and the planning has been created to complete the task in time, on quality and on budget.

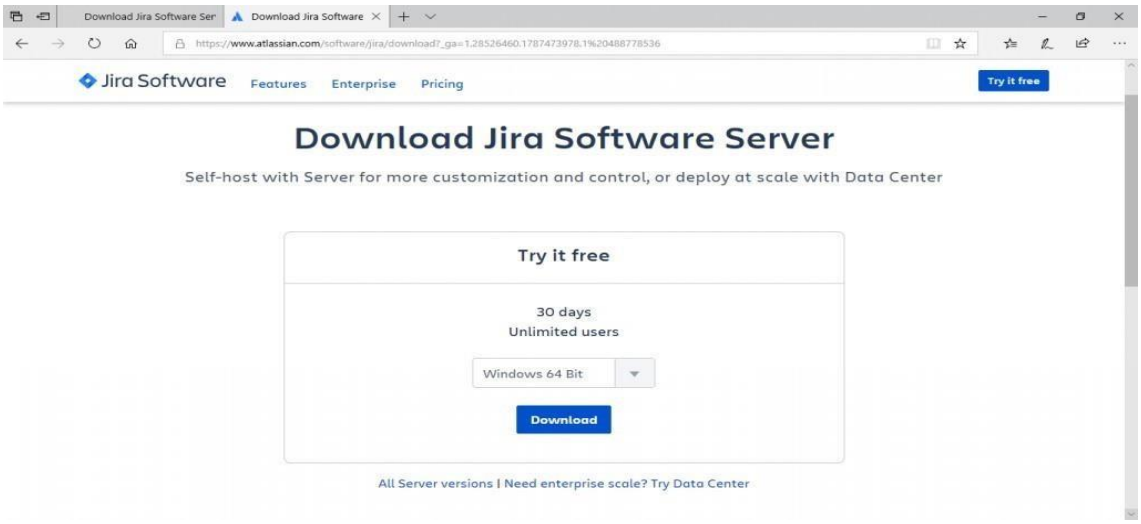
Step 4: When after 3 minutes business requirements are suddenly changed — let's say the government has just banned the color blue — you can observe the team getting stressed out. As a result we find many eggs thrown in the garbage bin, and the team starts all over again.

Step 5: As there is no time for evaluation during the project, the teams finish with only a few eggs completed. A bit disappointed about the sudden requirement change, the teams somehow aren't quite satisfied.

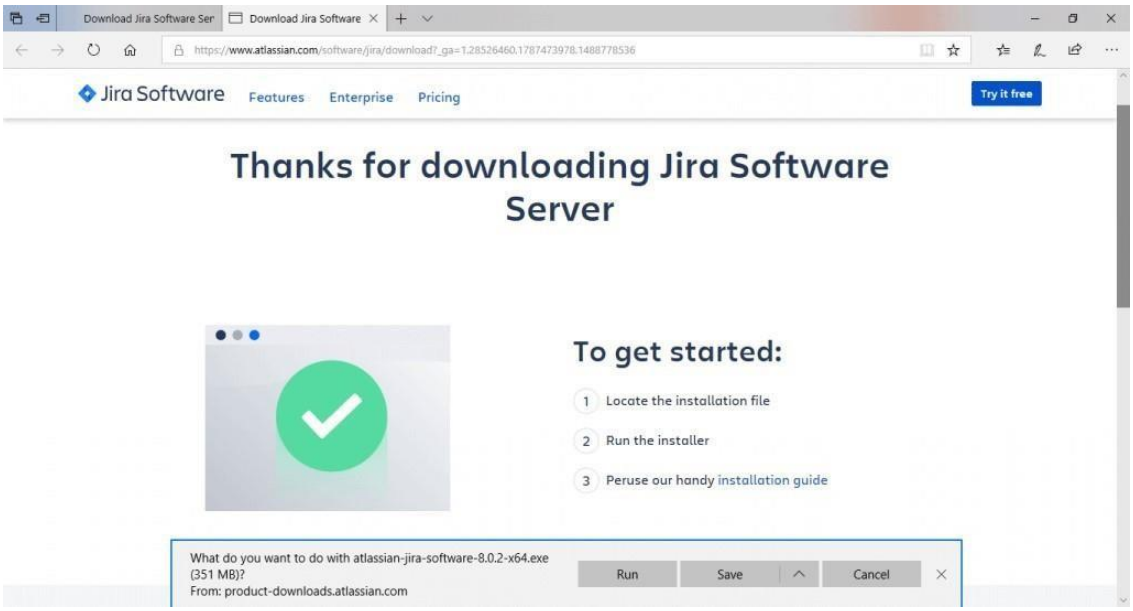
3. Create JIRA (similar tool) account and learn interface

Step 1 – To download and install Jira visit the official website of Atlassian. The link to the website ishttps://www.atlassian.com/software/jira/download?_ga=1.28526460.178747397 8.1 488778536

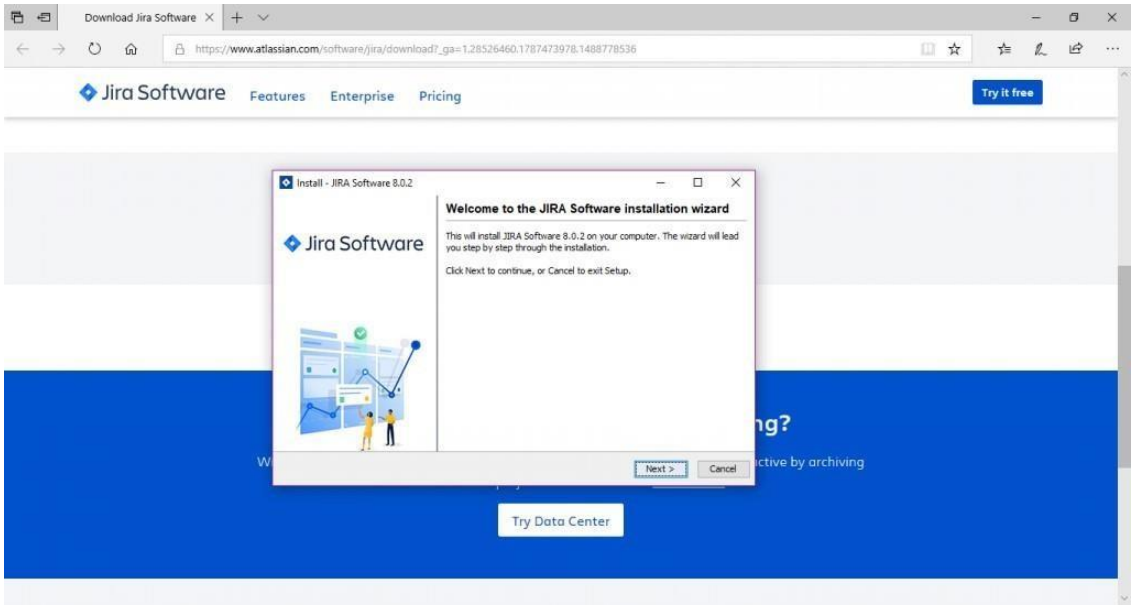
Step 2 – After selecting the type of Operating System in which you want to install Jira, look for the Download option and click on it. You can change the operating system type by clicking on the dropdown.



Step 3 – Once Jira is downloaded, click on the .exe file. After this, you will see that the Run confirmation pop-up is displayed, click on RUN to proceed. You can refer to the screenshot below.

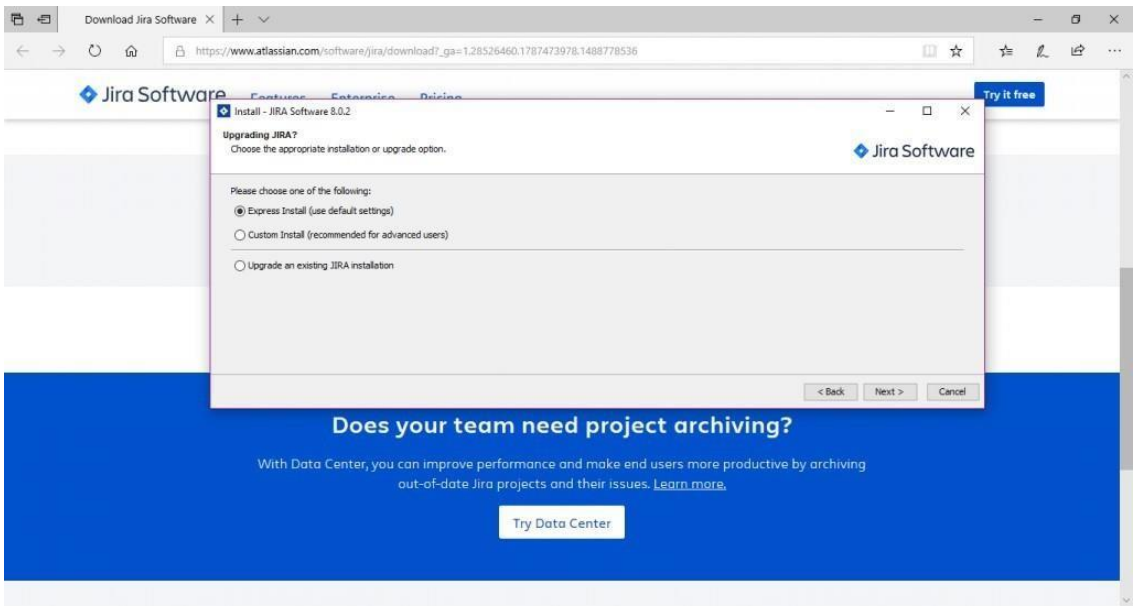


Step 4 – Notice that the JIRA installation wizard would be displayed. If so, click on Next

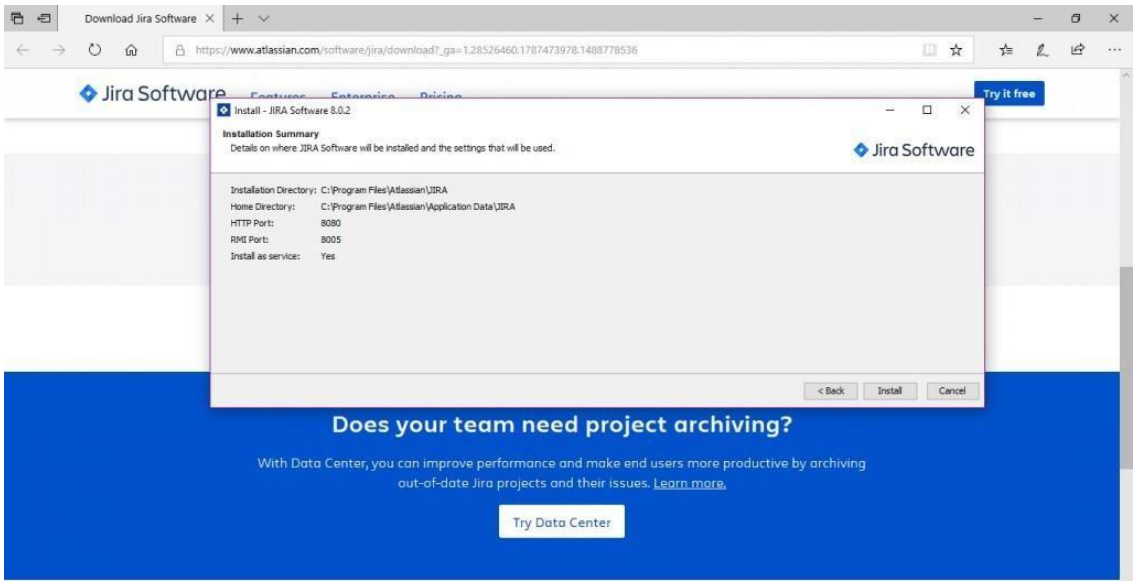


Step 5 – Choose the desired installation option and then click on Next again.

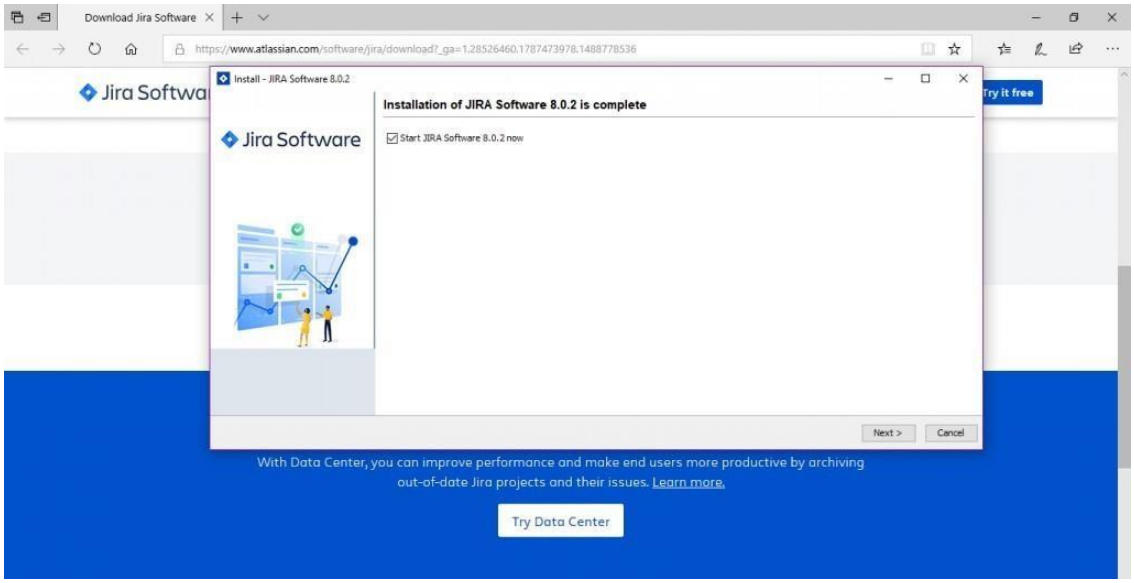
The installation summary would be displayed with the Destination Directory, Home Directory, RMI Port, HTTP Port etc. The screenshots for the same are attached below for your reference.



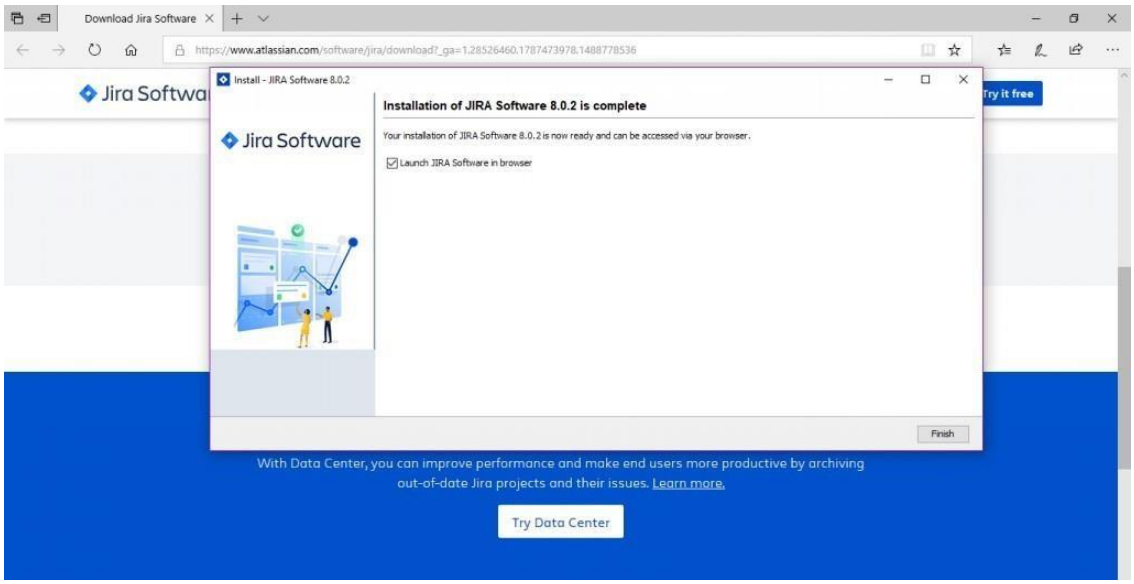
Step 6 – Click on Install. JIRA will start installing. It would take a few minutes for the installation to finish.



Step 7 – Please make sure that the "Start JIRA Software 8.0.2 now" checkbox is checked in order to start Jira automatically. After that click on Next, if not, it can be accessed using the Windows Start Menu shortcut.



Step 8 – Click the Finish button.


Download Jira Software
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Jira Softwa
Try it free
Install - JIRA Software 8.0.2
Jira Software
Installation of JIRA Software 8.0.2 is complete
Your installation of JIRA Software 8.0.2 is now ready and can be accessed via your browser.
Launch JIRA Software in browser
Finish
With Data Center, you can improve performance and make end users more productive by archiving out-of-date Jira projects and their issues. Learn more.
Try Data Center

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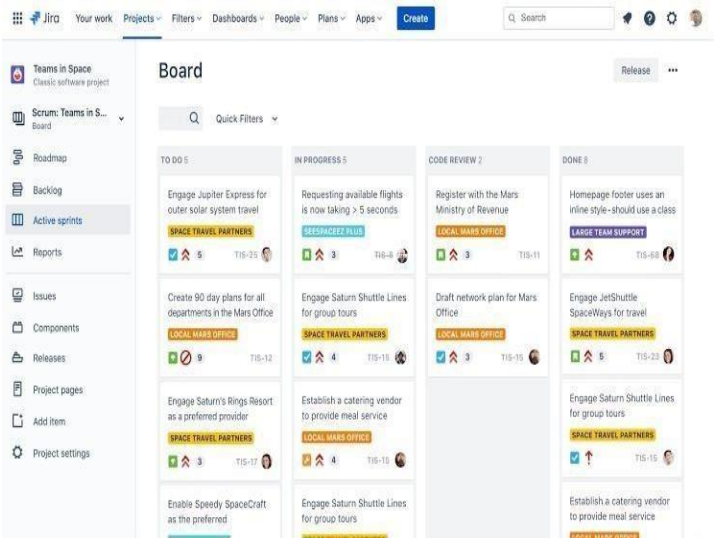
How to use Jira software



To Create a project

- In the top-left corner, click the Jira home icon
- In the top-right corner, select Create project.

To Pick a template

The Jira template library houses dozens of templates across a variety of different categories, and is designed to get your team started quickly and successfully. You can choose a template from all the Jira products you own (Jira Software, Jira Service Management, and Jira Work Management). Today, Jira Software offers three templates

To Set up your columns

- Navigate to your team's board by selecting Active sprints (for Scrum projects) or Kanban board (for Kanban projects) in the project menu on the left
- Select more (•••) > Board settings in the top-right corner.
- Select Columns.
- Select Add column to add a column for each step in your team's process.

Create an issue

- In the project menu, select **Roadmap** • Start typing, then hit enter to create your first epic.

Invite your team

- In the project menu on the left, select Project settings.
- Select People.
- In the top-right corner, select Add people.
- Search for your team member's email address, and select Add

WEEK 3

1. Play and act agile ceremonies
2. Play different agile roles

Agile ceremonies

The four scrum ceremonies are:

- Sprint Planning
- Daily Scrum
- Sprint Review
- Sprint Retrospective

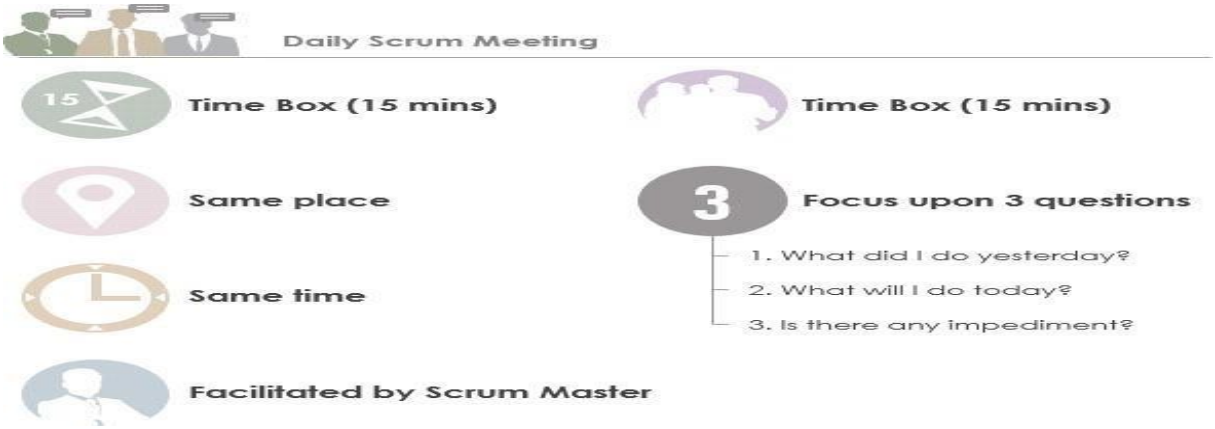
Sprint planning: is an **event in scrum that kicks off the sprint**. The purpose of sprint planning is to define what can be delivered in the sprint and how that work will be achieved.

Sprint planning is done in collaboration with the whole scrum team.

- Sprint Planning is used to determine what the team will accomplish in the upcoming Sprint. The event itself has two parts.

Daily Scrum : sometimes referred to as the Daily Standup, has a time-box for 15 minutes or less, and is specifically for the benefit of the development team.

- The goal of this event is for the team to get in sync on a daily basis, allowing for better collaboration and transparency.
- The Daily Scrum should be held at the same time each day and should not include anyone outside of the Scrum Team.



- The Daily Standup meetings are usually time-boxed to **between 5 and 15 minutes**.

Sprint Review:is when the team presents their work from the Sprint to the project's stakeholders.

- It should cover not only the work they accomplished, but also open discussions around the work they were not able to complete.

A Sprint Review includes the following events:

- Attendees include the Scrum Team and key stakeholders if invited by the Product Owner;
- The Product Owner discusses the ‘done’ and ‘what has not been done’ items of the Product Backlog,
- The Development team elaborates the ‘done’ work, and justifies the Increment,
- The Product Owner discusses the Product Backlog. He or she projects likely target and delivery dates based on progress to date (if needed)

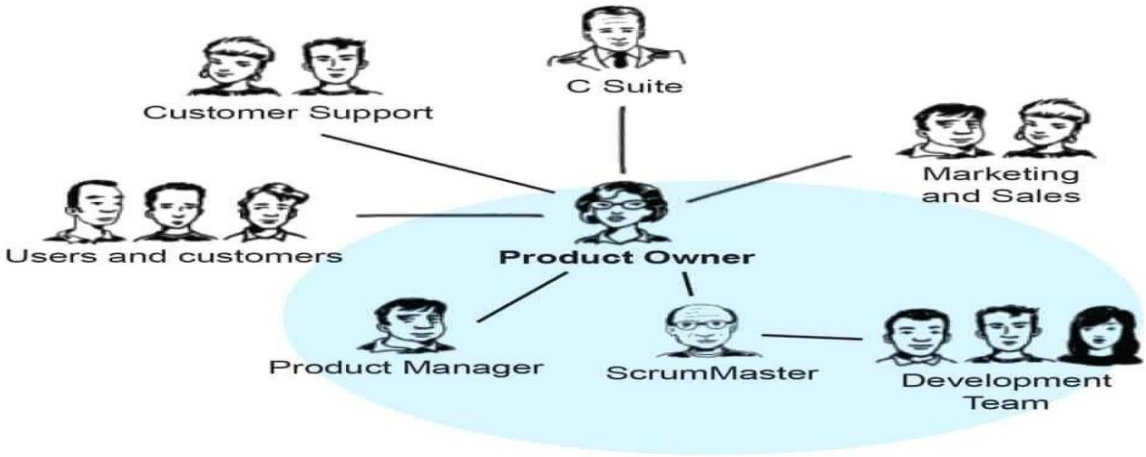
Sprint Retrospective: is the primary event in which the Scrum Team can inspect and adapt their approaches based on their experiences from the previous sprints.

The sprint retrospective is usually held as the last activity of the sprint. It is a good idea to repeat the sprint retrospective on the same day time and place.

- When you're performing a sprint retrospective you want to capture any good ideas that come up which can then be applied to future sprints

Roles and Responsibilities of Agile

- **Product Owner** – Often an executive or key stakeholder, the Product Owner has a vision for the end product and a sense of how it will fit into the company's long-term goals.
- This person will need to direct communication efforts, alerting the team to major developments and stepping in to course-correct and implement high-level changes as necessary.



The product owner is a role on a product development team responsible for managing the product backlog in order to achieve the desired outcome that a product development team seeks to accomplish. Key activities to accomplish this include:

- Clearly identify and describe product backlog items in order to build a shared understanding of the problem and solution with the product development team
- Make decisions regarding the priority of product backlog items in order to deliver maximum outcome with minimum

output

- Determine whether a product backlog item was satisfactorily delivered
- Ensure transparency into the upcoming work of the product development team.

Scrum Master – The Scrum Master is most akin to a project manager. They are guardians of process, givers of feedback, and mentors to junior team members.

- They oversee day-to-day functions, maintain the Scrum board, check in with team members, and make sure tasks are being completed on target

- The methodology is highly collaborative and requires efficient processes, and the results of the process depend upon the expertise of the Scrum Master.

- Agile methodologies may have started in tech companies, but Scrum Master jobs can be found in all kinds of industries and for all kinds of companies around the glob

Team Member– Team members are the makers: front- and back-end engineers, copywriters, designers, videographers, you name it.

- Team members have varied roles and skills but all are responsible for getting stuff done on time and in excellent quality.
- Every organization requires its employees to work together as a team to achieve its goals. It is possible to have different individuals working together in a group.
- But they must be team-oriented because effective teamwork depends on the character traits of a good team member.

What are the qualities of a good team member?

1. Having an identity.
2. Being committed.
3. Being flexible..
4. You are humble.
5. An effective communicator.
6. A consistent performer.
7. Being objective.

WEEK 4

1. case study to understand the importance of risk management and mitigation of risk

Tornado IPT Case Study

1. Working with Tornado IPT

- The Tornado Integrated Project Team (Tornado IPT) is part of the UK Ministry of Defence's (MOD's),
- Defence Equipment and Support (DE&S) organization.

- It is responsible for the provision of logistical support and capability development for the RAF Tornado F3 (Air Defence Variant) and the GR4 (Ground Reconnaissance) fleet until 2025,

- The requirement to drive down defence costs whilst maintaining outputs to the end customer has led the IPT instigating a transformation program which has resulted in the development of a series of availability-based contracting solutions with industry.

2. The Challenge

- The management of Safety-related risk has always been paramount within the Tornado IPT and it was recognized that a similar rigours needed to be introduced to manage the risks and issues potentially impacting on all areas of IPT business.
- In partnership with MOD's Risk Process Owner (Through Life Procurement Management Support Group) a formalized project risk management process was developed for the Tornado IPT.
- Key to the successful implementation of this program would be the selection and deployment of a powerful risk management and analysis tool.

3. The Solution

- After a comprehensive evaluation and assessment phase, Tornado IPT selected Predict! Risk Controller as best meeting its requirement.
- The intuitive nature of operation and integration with Predict! Risk Analyzer were key points identified.
- Feedback sought from other DE&S IPT's who already operated the tool were also positive which reinforced the selection processes.

- Risk Decisions have worked closely with Tornado IPT to configure Predict! And develop custom templates for management reporting.
- They also provided a comprehensive training program to ensure that users were able to get up to speed quickly and realize the benefits from Predict! Risk Controller and Risk Analyzer.

4. The Benefits

- Risk Management is now co-ordinate across the IPT with regular monthly business and project reviews being conducted.
- The decision-making process is now risk-based, with clearly defined escalation processes in place, ensuring risk is managed at the level where it can be influenced.

LEND LEASE CORPORATION CASE STUDY

Lend Lease Corporation Limited is an Australian-based multinational company that specializes in project management and construction, property investment management and property development.
The company has over 11,485 employees operating in more than 40 countries around the world where the Bovis Lend Lease division constructs and manages large building projects.

The Challenge:

- Lend Lease is leading a development team that includes Bovis Lend Lease as a project and construction manager for the residential development and infrastructure for Phase One of the Stratford City project.
- This involves the construction of up to 3000 residential dwellings and related accommodation that are due for completion in late

  2011.
- As the preferred development partner for Zones 2-7 of the Stratford City regeneration scheme, the company needed to implement the latest risk management technologies and model of proposed developments processes

The Solution:

- Was selected after a rigorous ITT process which included adetailed analysis of all potential solutions.
- Risk Decisions was one of the only suppliers able to demonstrate a track record of successful implementations and delivery of high levels of support to organizations of a similar scale working on large complex projects.

- Prior to installation on Lend Lease's servers based in Atlanta, USA, Risk Decisions conducted a master_class to introduce the concept of risk management at the highest level and a series of workshops with different stakeholder groups to determine configuration requirements.
- The company has also provided additional consultancy support to assist with stakeholder mapping and setting a framework to enable risk management tobe rolled out and embedded as a core process and procedure.

- Lend Lease has deployed Predict!, the latest enterprise version of Risk Decisions' powerful suite of risk management and analysis software which includes Predict! Risk Controller and Predict! Risk Analyzer.
- It also intends to implement Predict! Risk Controller Lite, a unique solution that uses familiar spreadsheets to enable infrequent and remote users to provide regular updates on risks.
- This module will also be a key change management tool to assist in the embedding of risk management across the organization and will be deployed early in 2009.

WEEK 5

1. Conduct warmup activities to Ignite Design Thinking

Conduct Warm up activity to ignite Design thinking.

<1.So what are warm-ups?

>Warm-ups can be described as exercises one normally runs right before the main proceedings to help participants relax and ease people into a group activity or learning situation. Warm-ups go very well with design thinking because they support many of its attributes, such as being curious and having an open mindset as well as being mindful of and collaborating with other people.

>Consequently, a well-chosen warm-up can add real value to a design thinking workshop or project, but then, a poorly chosen warm-up can also have the opposite effect, making people feel nervous, uncomfortable and confused. So, when choosing your warm-up, choose it purposefully! Here are some pointers to bare in mind:

Firstly, warm-ups are not per se part of design thinking, they just have proven to be a useful way of promoting team work and supporting certain work attitudes.

- Warm-ups as well as other methods and exercises should generally be selected to suit the team, so you should know your audience and the people you are working with.

- While it's important to be mindful of the people, it is also vital to read the current mood and situation and select the warm-up accordingly — it should fit to the given circumstances.

- Let the participants understand that you don't just want to do a 'warmup' with them now. Communicate the goal and reflect on it afterwards if necessary. Especially when using an 'educative' warm-up, e.g. 'Marshmallow Challenge' before prototyping, you should debrief it — active reflection increases the likelihood of understanding and learning.

- For the conduct of the warm-up, give clear instructions and know when a short demo might be necessary for your audience to better understand the activity.

- Lastly, I would like to add that you as a facilitator should love and understand the warm-up you're choosing and get excited when using it.

  Only then will the spark be transmitted to the participants.

>Below, you find some examples of what for and when you can use a warm-up:

- Create a positive group atmosphere
- Help people to get to know one another (better)
- Break down social barriers
- Reduce pressure
- Energize
- Distract the group temporarily to better focus afterwards
- Prepare the team for a certain mode of working / phase / mindset.

WEEK 6

1. Organize role play for requirement activities What is role play?

Role-play or role-paying is the changing of one's behavior to assume a role, either unconsciously to fill a social role, or consciously to act out an adapted.

Role play objectives

- Be very clear about what you want people to get out of the role playing experience.
- Clear thinking and role play preparation result in clear outcomes.
- Are you assessing skills or are you developing them? If you are assessing people, they need to know the competency.
- People also need to trust that the role play will have the same level of challenge for them and their peers.
- Are you giving everyone the same level of challenge, or are you flexing according to the level of skill

Role playing placement - where in the agenda?

- In skills development programmer, trainers and facilitators often schedule a role play exercise at the end of a course
- People become more comfortable with the idea of 'performing' in public; and, it more fairly shows role
- Hey get feedback in the form of notes from the director, which they will immediately apply to the work in hand.
- Be realistic in your ambitions for the role play. For instance, if you are teaching a complex.
- If you don't have time to eventually get the participants doing the whole thing properly, in depth, with plenty of rehearsal and revisiting, then just do a part of it.

Role play briefing

- Allow the other participants to observe the role play and give their comments afterwards.
- Explain clearly what you want them to look out for.
- It is important though that the (non-professional role player) person or persons involved in the role play go first.

Role play development

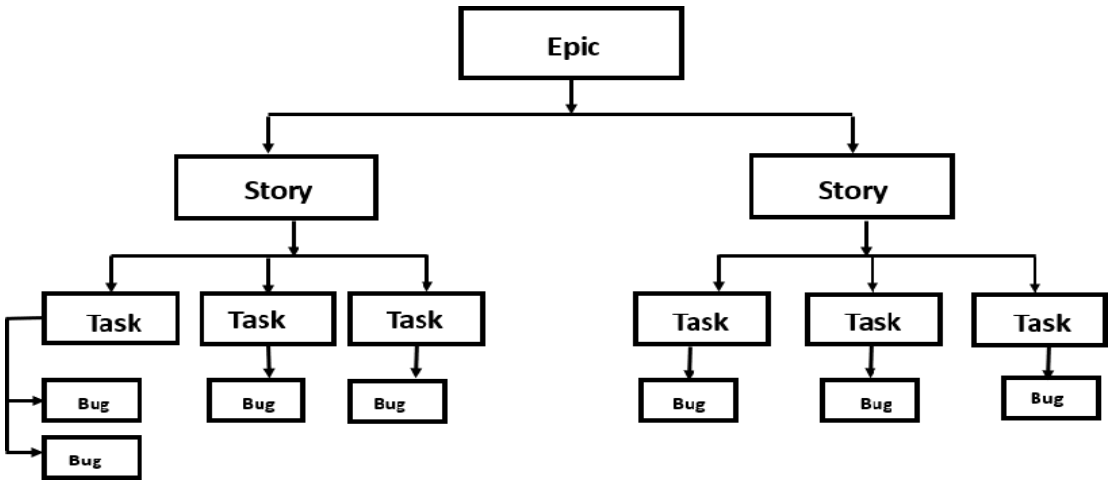
- Play allows children to use their creativity, developing their imagination, dexterity, and physical, cognitive, and emotional strength.

- Play is important to healthy brain development.

Types of Role Play

- Illiterate
- Semi-Literate
- Literate
- Advanced Literate

1. Identify a problem and prepare requirement document or Epics and user stories



EPIC:

Develop small Retail application for online shopping

Story :

1. Develop product search UI screen **[description-gather product items, add in product screen,create search facility for this screen]**

2. Login

"As a customer, I want to create a password on my account, so that I can login.

Task

- Allow email addresses in the format name@gmail.com.
- Verify password field id not greater than 20 characters.
- Validated accounts can be logged into.

registration form

"As a customer, I want to be able to register online so, that I can start shopping online".

Task

- User can only submit a form by filling in all required fields.
- The email user provided must not be a free email.
- Submission form same IP can only be made three times within 30 minutes. User will receive a notification email after successfully registration

Changes to cart:

"As a customer , I want shopping cart functionally to easily purchase items online."

Task

- Able to add an item into shopping cart by entering the quality.
- Prompted "please enter the quality" when the quality is unfilled when adding item.
- Prompted "sorry, item is temporally out of stock" when try to add item without enough stock.
- The quality is "1" by default
- Unable to enter non number in quality field
- Make sure the items above are all passed in the build of firefox , chrome and edge.

Payment:

User story:

"As customer , I want to be able to payment online so that I can easily purchase item in online shopping".

Task

- The user given option with various modes of payment (online payment through credit/debit cards via net or mobile banking or cash on delivery) out of which the chooses one. The chose mode of transaction authentication of bank details.

User story:

"As a customer , I should be able to logout from the online shopping system at any time".

Task

- Users can logout by pressing the logout button.
- After pressing logout will bounce to the login page
- Signing out will delete information indicating the identity of the user from the device.

Report generation:

user story:

- "As a customer , I want to be able to report generation of the item, so easily help to the online shopping system administrator".

Task

- After ordering for the product, the system will sent one copy of the bill to the customer's email address and another one for the system data base.

Bug

1. Shopping card screen not working properly
2. Issue while searching product in product search screen (description-issue fixed and unit testing done please procced with QA testing)

4. Draw UML diagram for given use case

What is a use case diagram?

In the Unified Modelling Language (UML), a use case diagram can summarize the details of your system's users (also known as actors) and their interactions with the system. To build one, you'll use a set of specialized symbols and connectors. An effective use case diagram can help your team discuss and represent:

- Scenarios in which your system or application interacts with people, organizations, or external systems

Goals that your system or application helps those entities (known as actors) achieve

- The scope of your system

When to apply use case diagrams

- Representing the goals of system-user interactions.
- Defining and organizing functional requirements in a system.
- Specifying the context and requirements of a system.
- Modelling the basic flow of events in a use case.

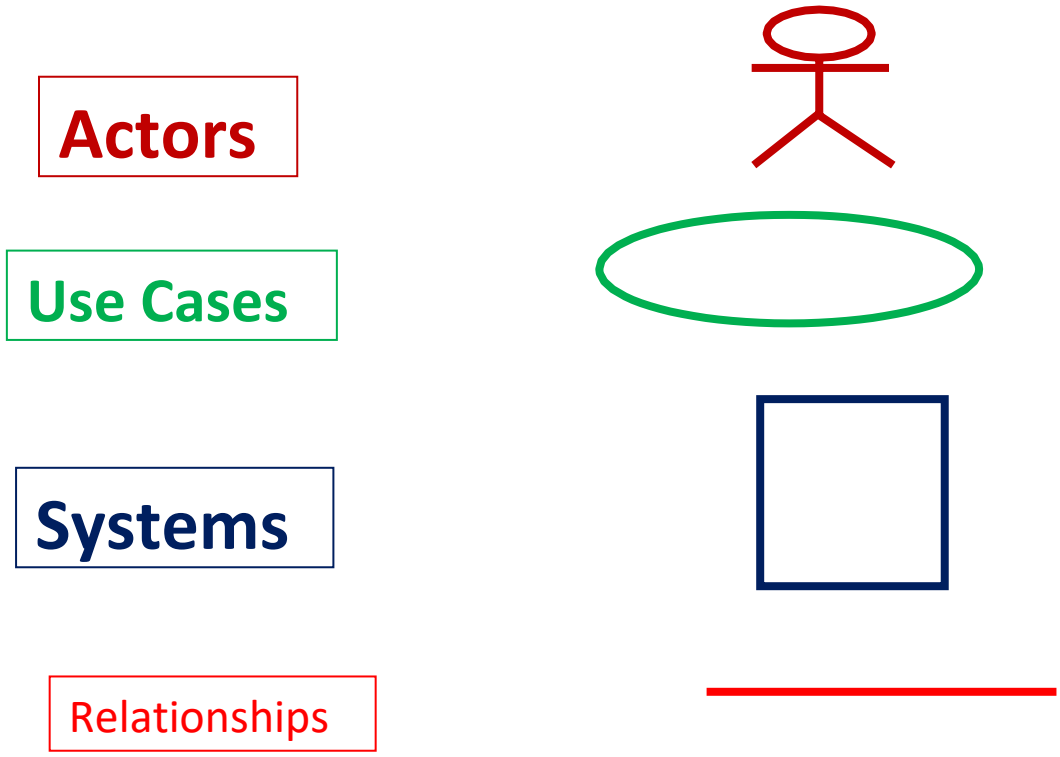
3. Draw UML diagram for given use case

- Use case diagrams are usually referred to as behaviour diagrams
- Used to gather requirements of a system.
- Used to get outside view of a system show the interaction between actors and use case

Components of use case diagram

- Components of use case diagram

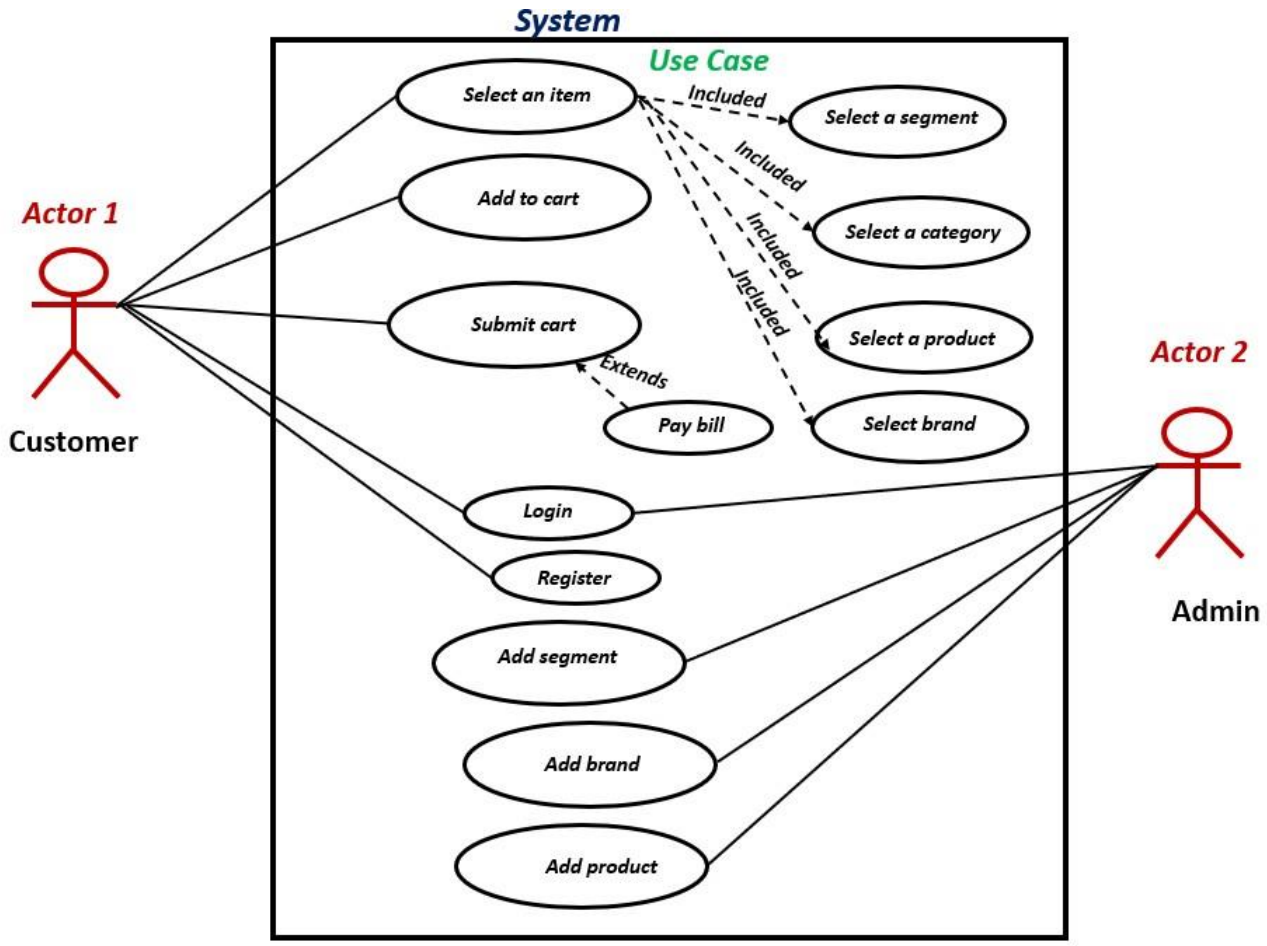
- Functionalities to be represented as a use case
- Actors
- Relationships among the use cases and actors



Actors: Who interacts with the system

Use Case: functionality or services provided by the system

Relation: Relation between actors and the system.


System
Use Case
Select an item
Add to cart
Submit cart
Pay bill
Login
Register
Add segment
Add brand
Add product
Select a segment
Select a category
Select a product
Select brand
Included
Included
Included
Included
Extends
Actor 1
Customer
Actor 2
Admin

WEEK 7

1. Create detailed user stories for the above identified problem

Online Shopping

Project Task:

Based on above scenario, you are expected to perform the following task

1. Identify at least one epic and seven user story from above case. Link the story to epic
2. Get free JIRA account and create Scrum project
3. Enter the Backlog (Epic, story, subtask and Bug) in JIRA
4. Make a release plan, by assigning stories to three sprints
5. Start and complete one sprint
6. Submit screenshot of Epic, Backlog, release plan, Story, Scrum board with task in various states

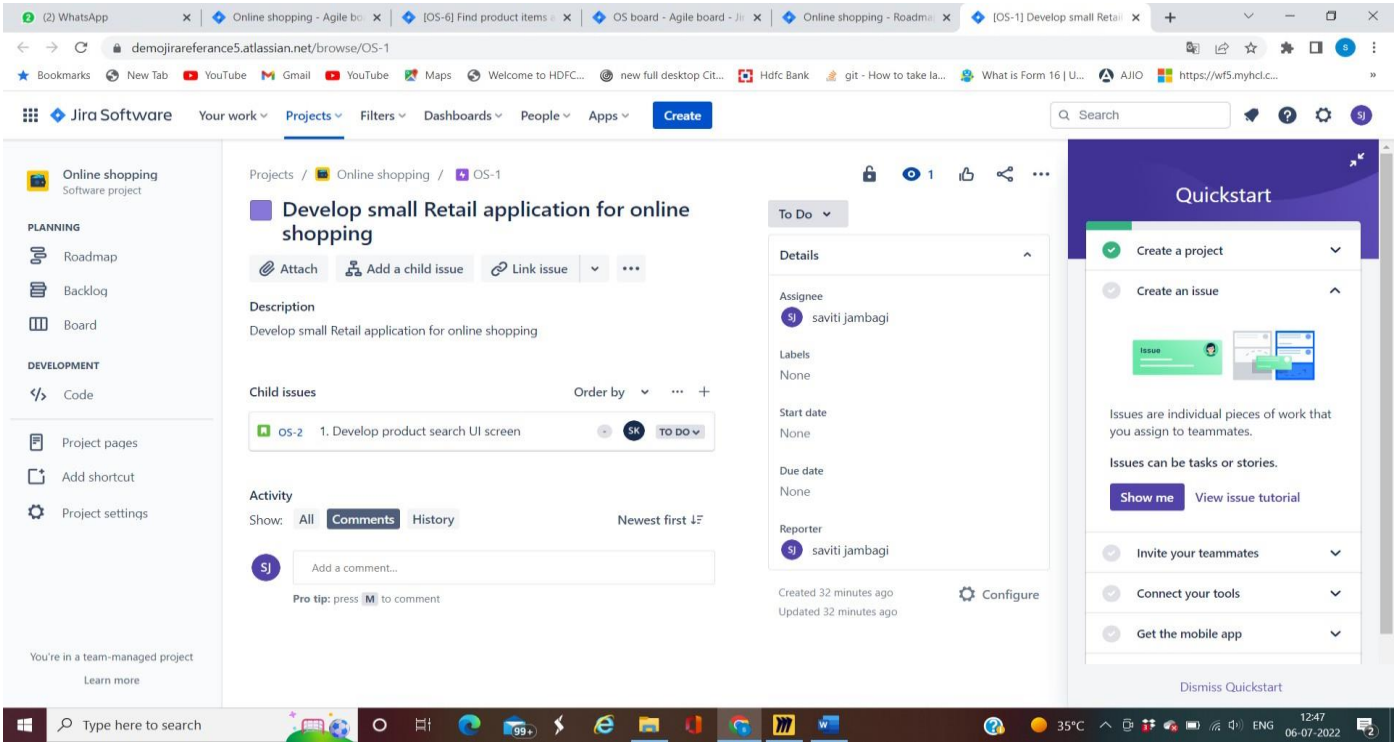
EPIC:

Develop small Retail application for online shopping

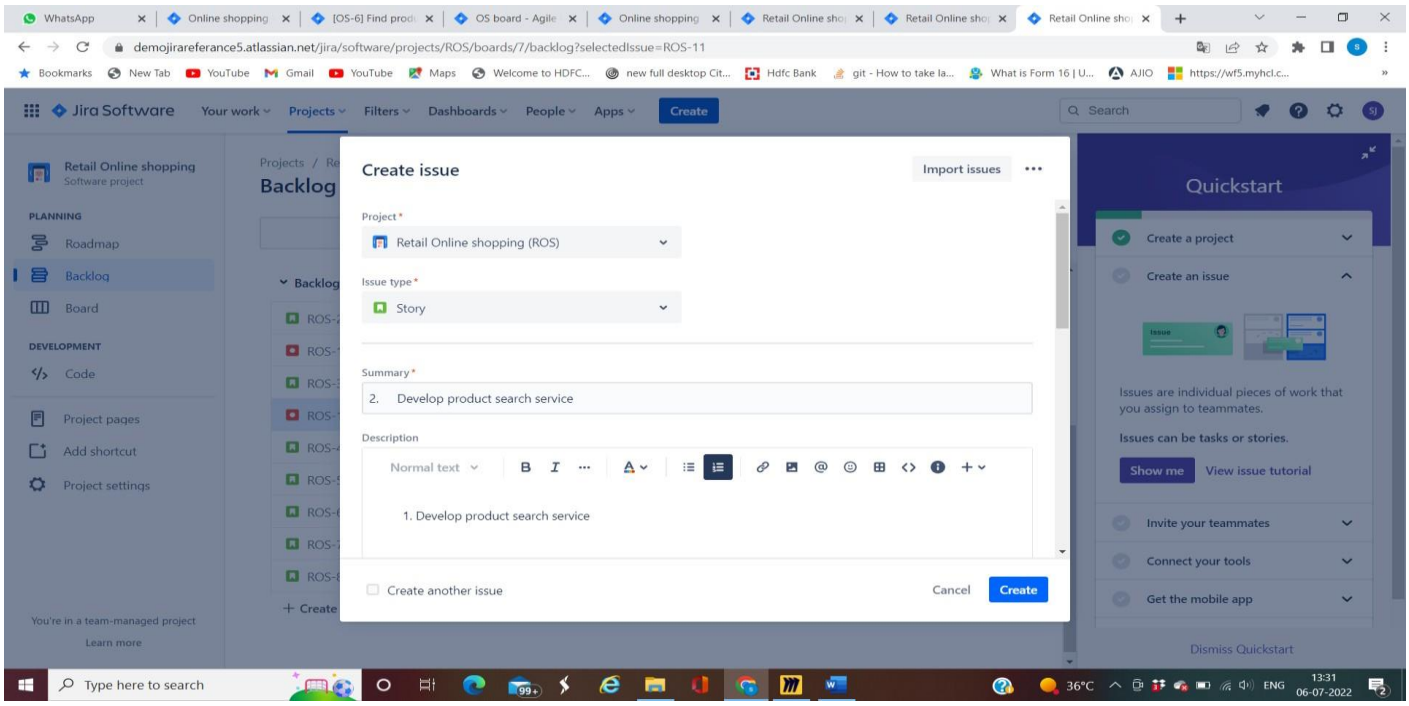
Story :

3. Develop product search UI screen **[description-gather product items, add in product screen,create search facility for this screen]**
   Task
   Find product items as provided by user
4. Develop product search service
5. Develop shopping CARD UI for selected product
6. Develop shopping CARD service
7. Develop searched product online order UI component
8. Develop searched product online order service
9. Develop searched product online payment UI components
   Bug
4. Shopping card screen not working properly
5. Issue while searching product in product search screen (description-issue fixed and unit testing done please procced with QA testing)
6. **OUTPUT**

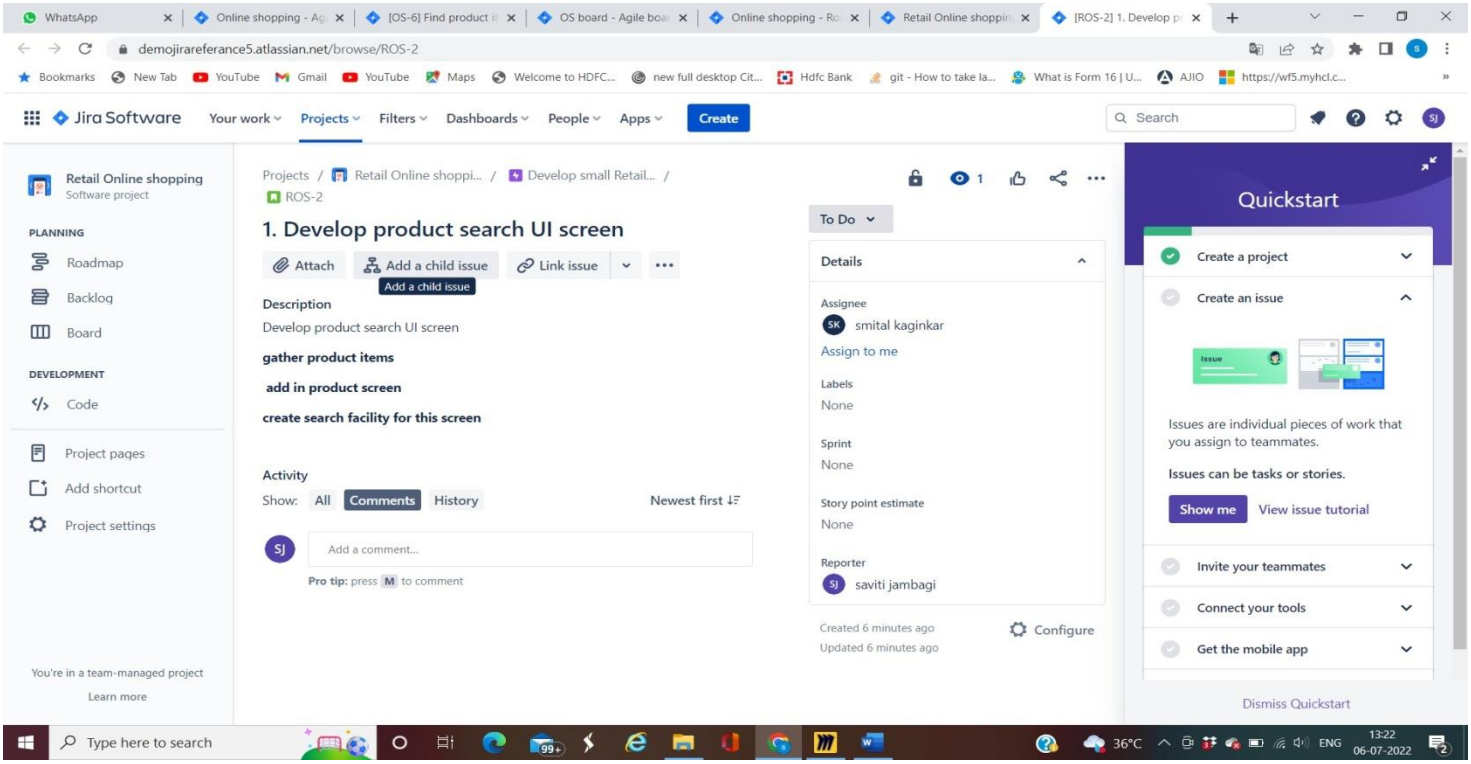
7. **EPIC:**



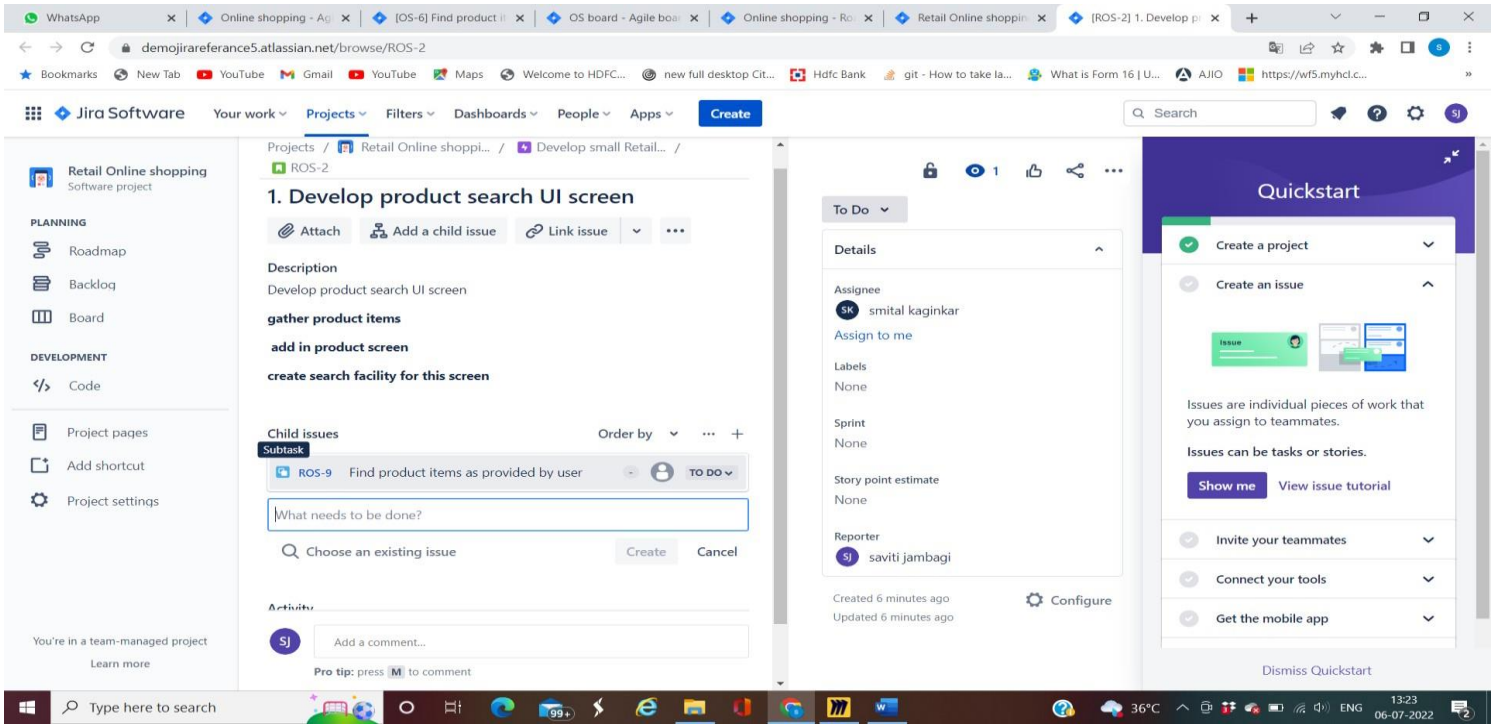
Story create: after creating story click on create button



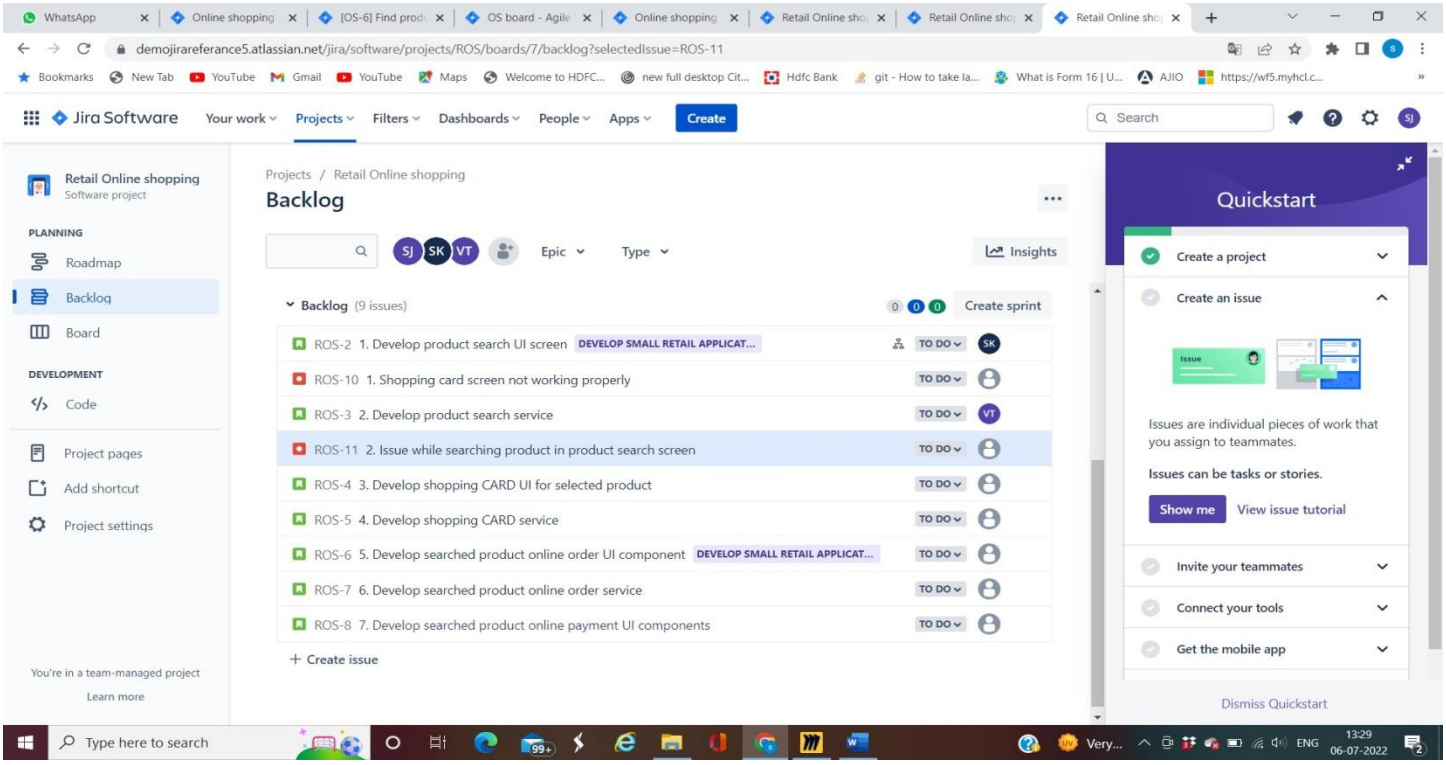
8. Story



Task: creating task into the story 1



Backlog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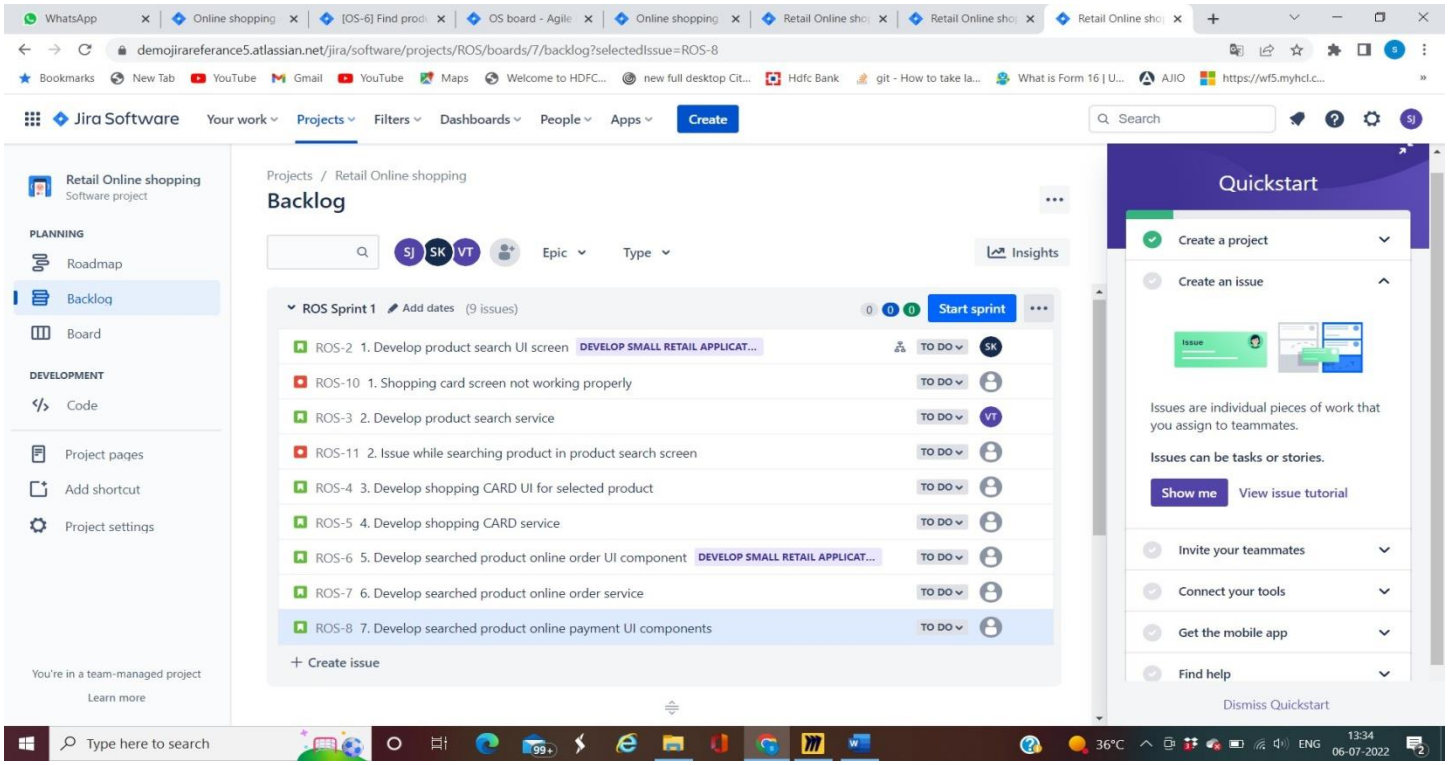
Jira Software
Your work
Projects
Filters
Dashboards
People
Apps
Create
Search
Retail Online shopping
Software project
PLANNING
Roadmap
Backlog
Board
DEVELOPMENT
Code
Project pages
Add shortcut
Project settings
You're in a team-managed project
Learn more
Projects / Retail Online shopping
Backlog
Epic
Type
Insights
Backlog (9 issues)
Create sprint
ROS-2 1. Develop product search UI screen
DEVELOP SMALL RETAIL APPLICAT...
ROS-10 1. Shopping card screen not working properly
ROS-3 2. Develop product search service
ROS-11 2. Issue while searching product in product search screen
ROS-4 3. Develop shopping CARD UI for selected product
ROS-5 4. Develop shopping CARD service
ROS-6 5. Develop searched product online order UI component
ROS-7 6. Develop searched product online order service
ROS-8 7. Develop searched product online payment UI components
TO DO
Create issue
Quickstart
Create a project
Create an issue
Issues are individual pieces of work that you assign to teammates.
Issues can be tasks or stories.
Show me
View issue tutorial
Invite your teammates
Connect your tools
Get the mobile app
Dismiss Quickstart
Type here to search
13:29
06-07-2022

Sprint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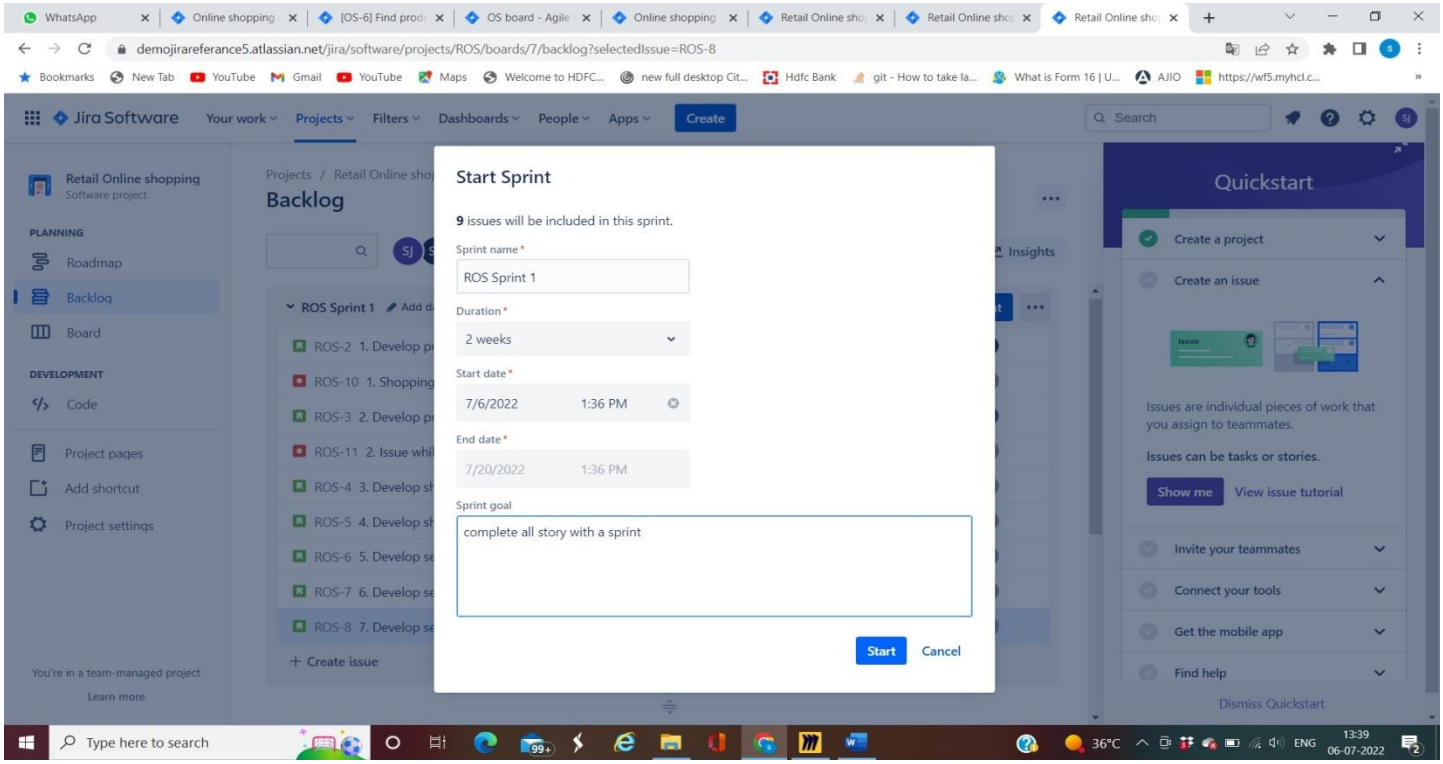
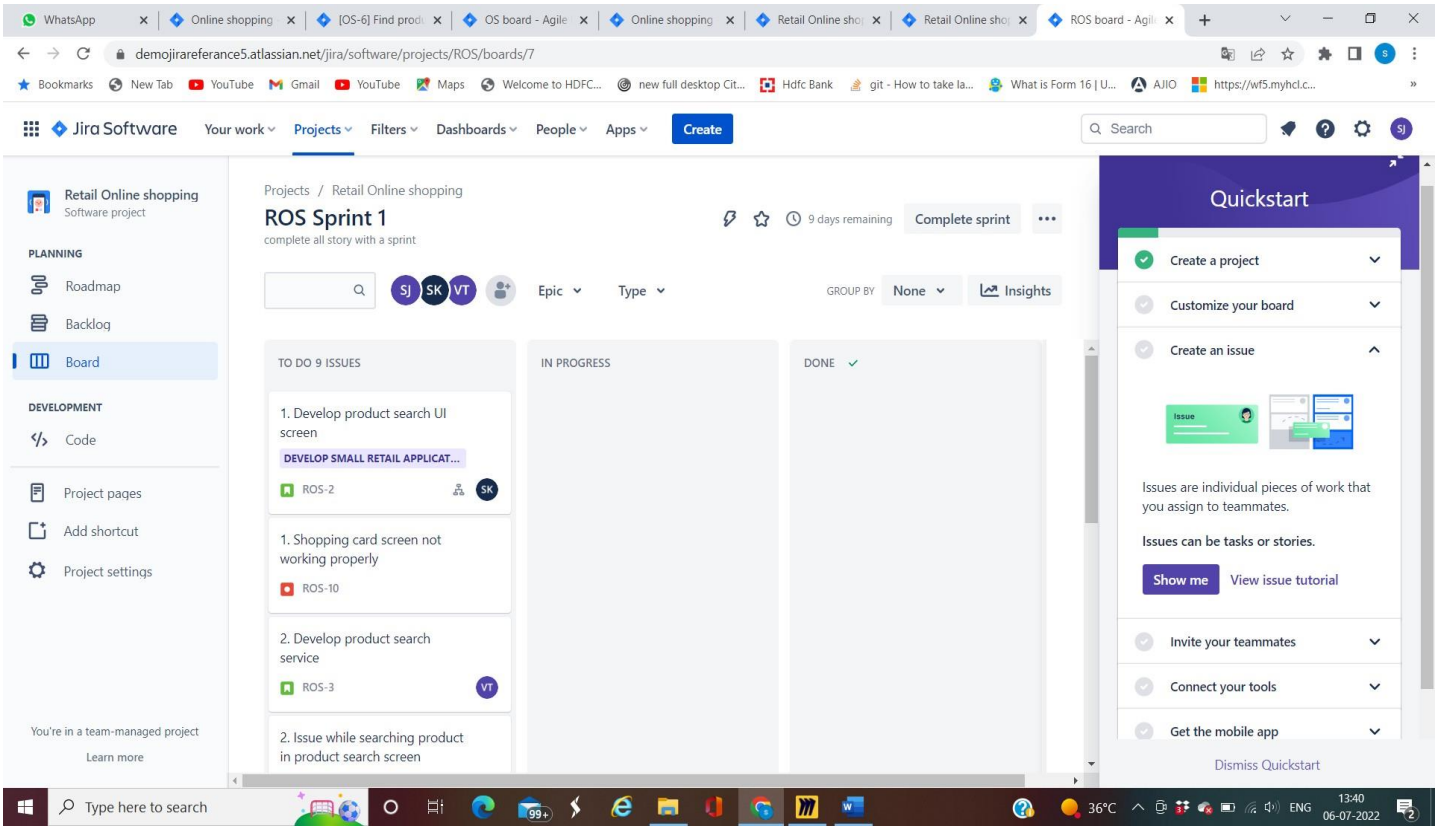
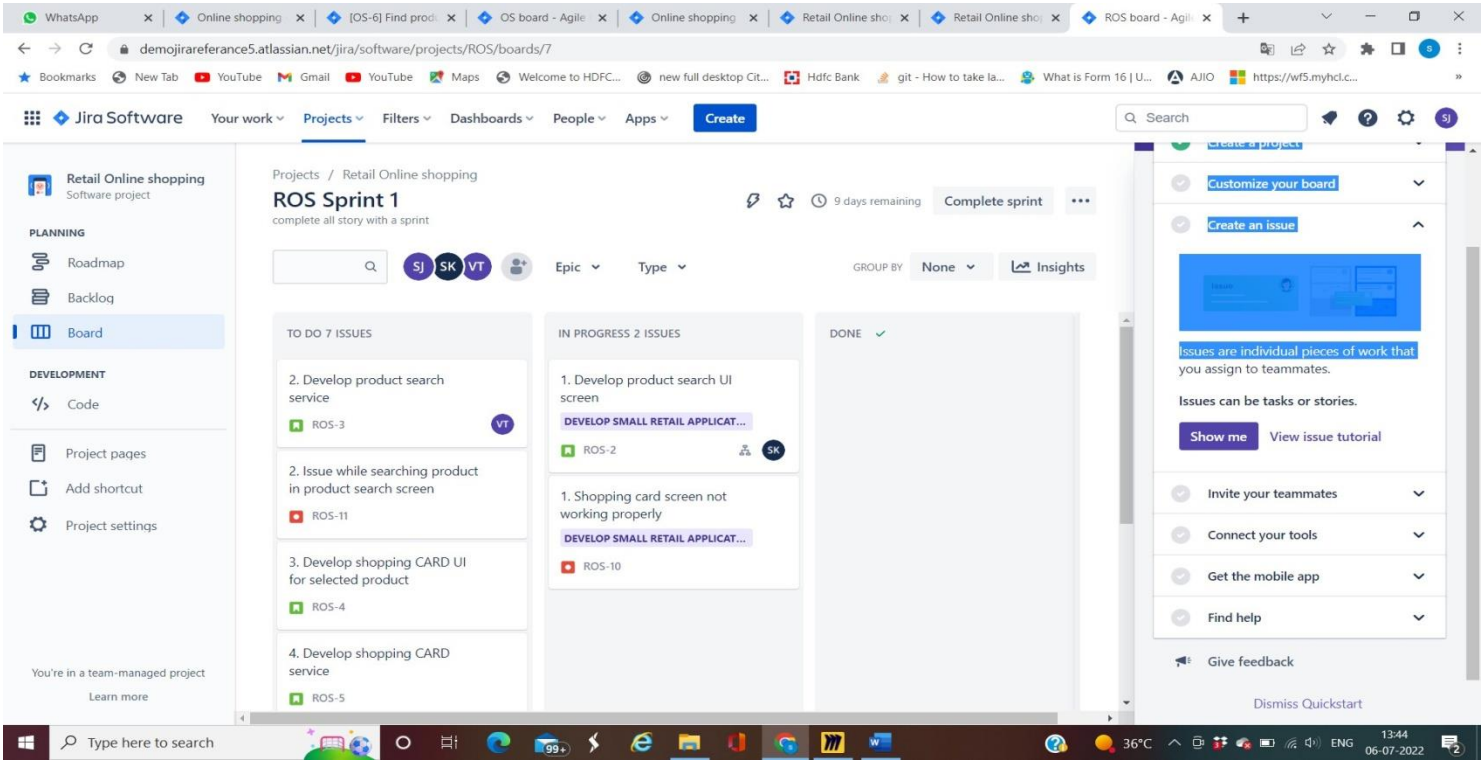
Jira Software
Your work
Projects
Filters
Dashboards
People
Apps
Create
Search
Retail Online shopping
Software project
PLANNING
Roadmap
Backlog
Board
DEVELOPMENT
Code
Project pages
Add shortcut
Project settings
You're in a team-managed project
Learn more
Projects / Retail Online shopping
Backlog
Epic
Type
Insights
ROS Sprint 1
Add dates
(9 issues)
Start sprint
ROS-2 1. Develop product search UI screen
DEVELOP SMALL RETAIL APPLICAT...
ROS-10 1. Shopping card screen not working properly
ROS-3 2. Develop product search service
ROS-11 2. Issue while searching product in product search screen
ROS-4 3. Develop shopping CARD UI for selected product
ROS-5 4. Develop shopping CARD service
ROS-6 5. Develop searched product online order UI component
ROS-7 6. Develop searched product online order service
ROS-8 7. Develop searched product online payment UI components
TO DO
Create issue
Quickstart
Create a project
Create an issue
Issues are individual pieces of work that you assign to teammates.
Issues can be tasks or stories.
Show me
View issue tutorial
Invite your teammates
Connect your tools
Get the mobile app
Find help
Dismiss Quickstart
Type here to search
13:34
06-07-2022

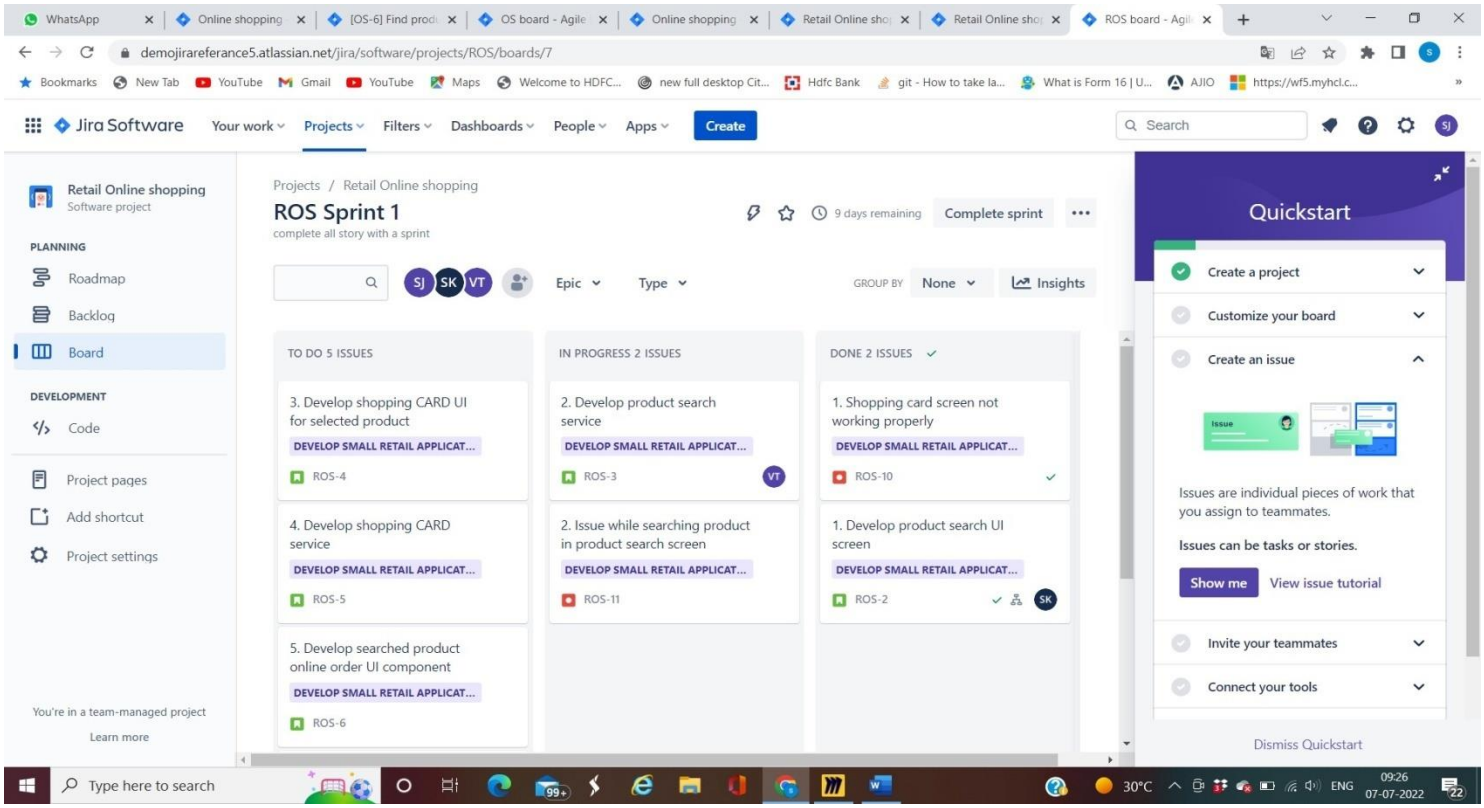


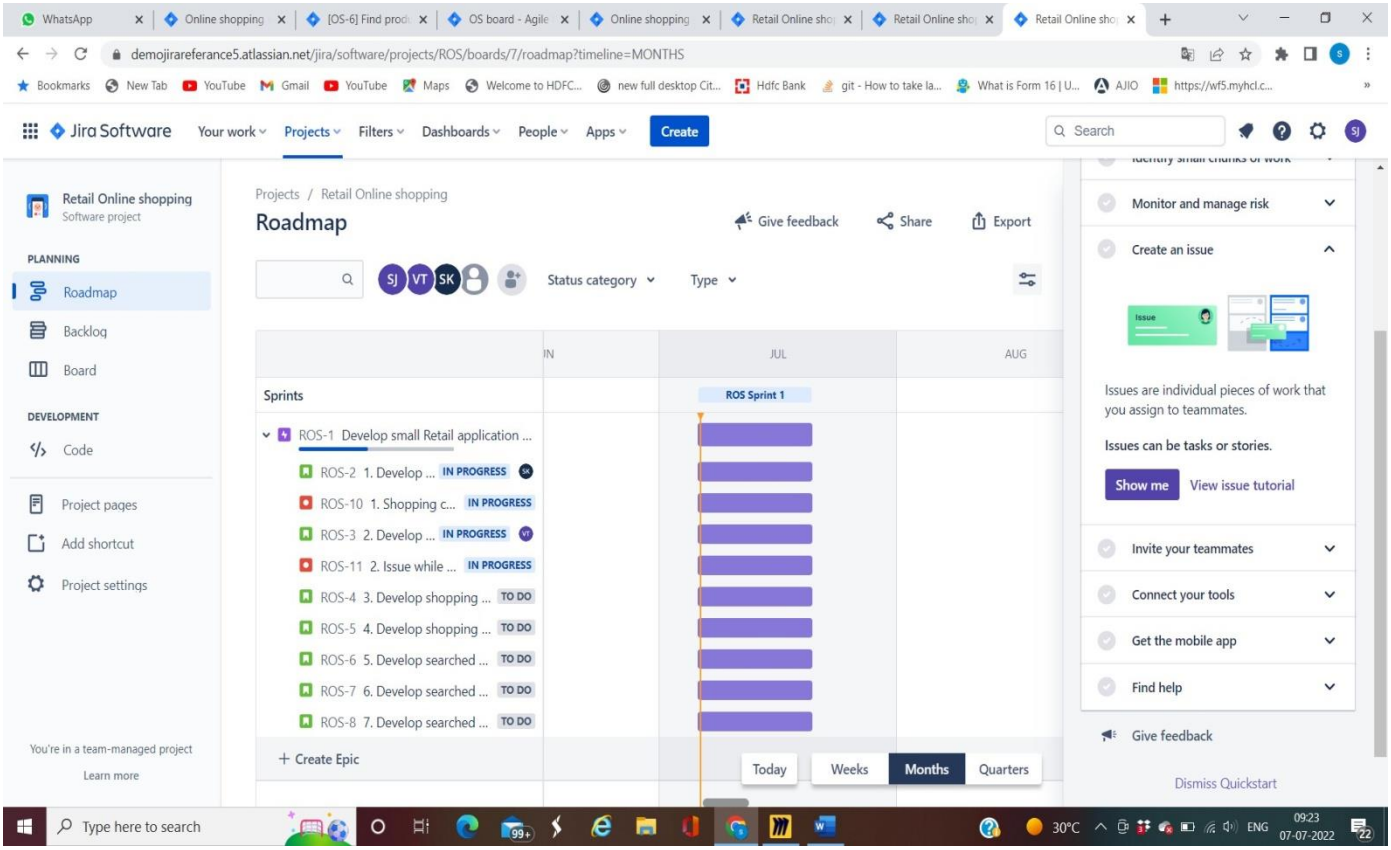
Scrum board: scrum board in initial condition





Scrum board with task in various states:




demojirareferance5.atlassian.net/jira/software/projects/ROS/boards/7/roadmap?timeline=MONTHS
Jira Software
Your work
Projects
Filters
Dashboards
People
Apps
Create
Search
Retail Online shopping
Software project
PLANNING
Roadmap
Backlog
Board
DEVELOPMENT
Code
Project pages
Add shortcut
Project settings
You're in a team-managed project
Learn more
Projects / Retail Online shopping
Roadmap
Give feedback
Share
Export
Status category
Type
JUL
AUG
Sprints
ROS Sprint 1
ROS-1 Develop small Retail application ...
ROS-2 1. Develop ... IN PROGRESS
ROS-10 1. Shopping c... IN PROGRESS
ROS-3 2. Develop ... IN PROGRESS
ROS-11 2. Issue while ... IN PROGRESS
ROS-4 3. Develop shopping ... TO DO
ROS-5 4. Develop shopping ... TO DO
ROS-6 5. Develop searched ... TO DO
ROS-7 6. Develop searched ... TO DO
ROS-8 7. Develop searched ... TO DO
+ Create Epic
Today
Weeks
Months
Quarters
Monitor and manage risk
Create an issue
Issues are individual pieces of work that you assign to teammates.
Issues can be tasks or stories.
Show me
View issue tutorial
Invite your teammates
Connect your tools
Get the mobile app
Find help
Give feedback
Dismiss Quickstart
Type here to search
30°C
ENG
09:23
07-07-2022

WEEK 8

1.Create sitemap and wireframe for above created user stories

Create Sitemap wireframe for above created user stories. (Tools such as sketch, Adobe XD, Figma, etc. can be used. **NOTE:** Download any of the tool mentioned in the Title.

Step-1: Download the Figma Application Through Any browser,

Step-2: Now install the application in the desktop

Step-3: Open the application and create an account using Google account

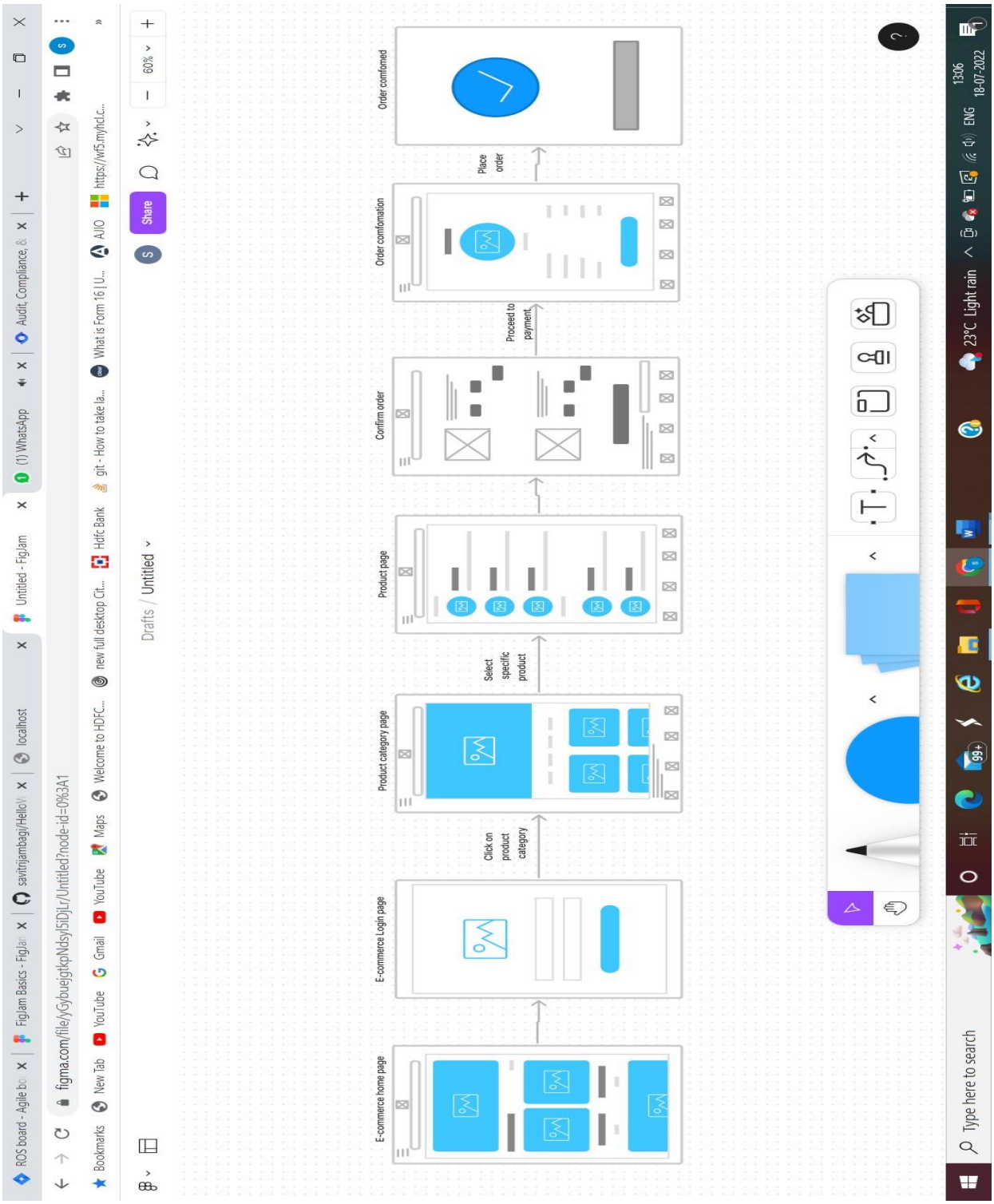
Step-4: Now again Login into Figma application and create a new page using new figjam ,

Step-5: Using Clipboard, click on ellipse and choose it as square,

Step-6: Make some clips by pulling blocks from ellipse,

Step-7: arrange the blocks as shown in the above diagram.

Drafts / FigJam Basics
Share
9%
Home Page
Other pages
Blog
Support Desk
Facebook
Twitter
Instagram
Account
Profile
Payment Methods
Password
Saved addresses
Order History
Gift Cards
Cart
Order Summary
Shipping Method
Payment Method
Shipping
Products
Category
Collections
Featured
Clearance
Product Details
Compare Products
About us
Company
Team
The story


E-commerce home page
E-commerce Login page
Click on product category
Product category page
Select specific product
Product page
Confirm order
Proceed to payment
Order comfomation
Place order
Order comfomed
Drafts / Untitled
Share
60%
Type here to search
23°C Light rain
ENG
13:06
18-07-2022

WEEK 9

1. Create Git (similar tool) account and configure repository

Steps to publish Git artifacts

A developer should follow these five steps to publish GitHub Actions artifacts for download:

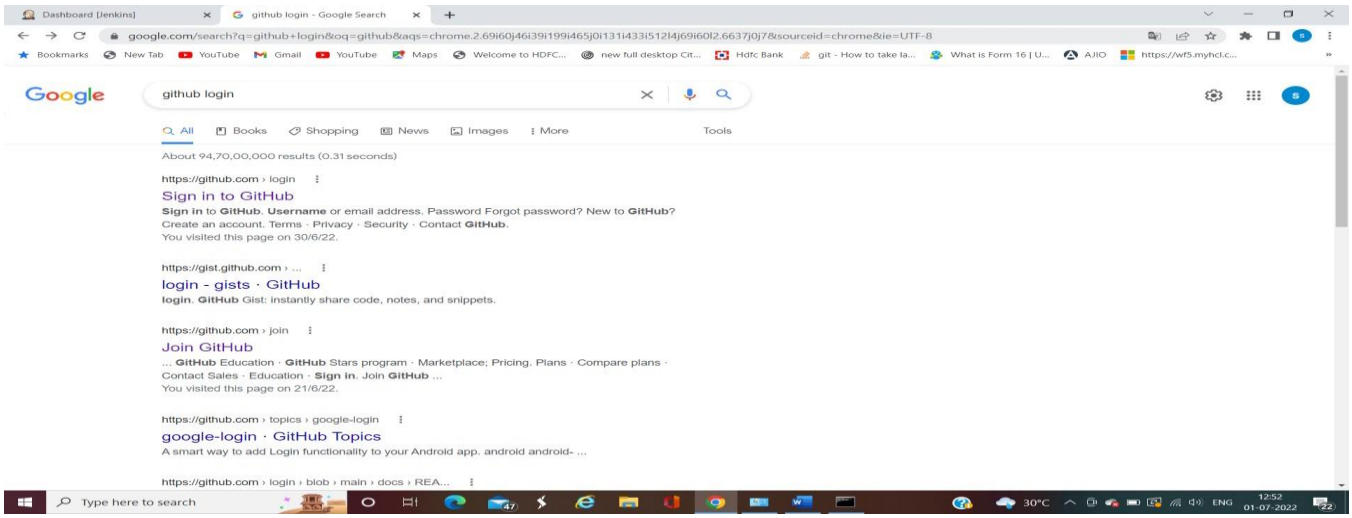
1. Perform Git Actions build steps
2. Create a temporary folder in the container being used
3. Copy all artifacts of interest into that temporary folder
4. Use GitHub's upload-artifact action
    1. Provide a meaningful name for the artifact download link
    2. Specify the path to the folder containing your GitHub Action artifacts
5. Run the GitHub Actions workflow and find the published artifacts on the workflow's build page
6. The easiest way to demonstrate how GitHub's artifact upload action works is to add a step to a simple workflow that creates a temporary directory. Then, use the touch and echo commands to create a few simple files. Once a developer completes this action, the files will publish as artifacts.

Published artifacts in GitHub

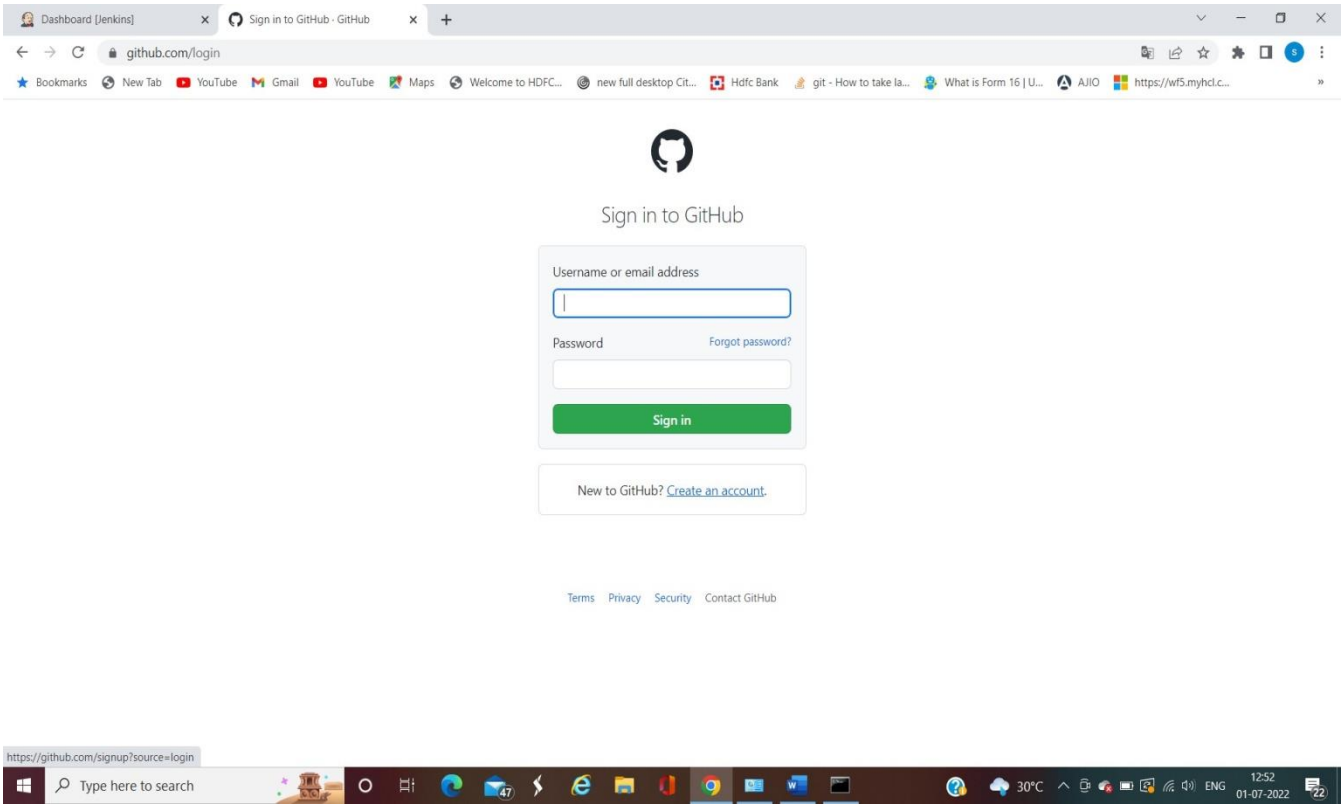
If a developer isn't familiar with the echo and output switch, the following command will create a file on the local filesystem named alpha.html with the text 'alpha' contained within it:

Step 1:open google download git hub software setpup

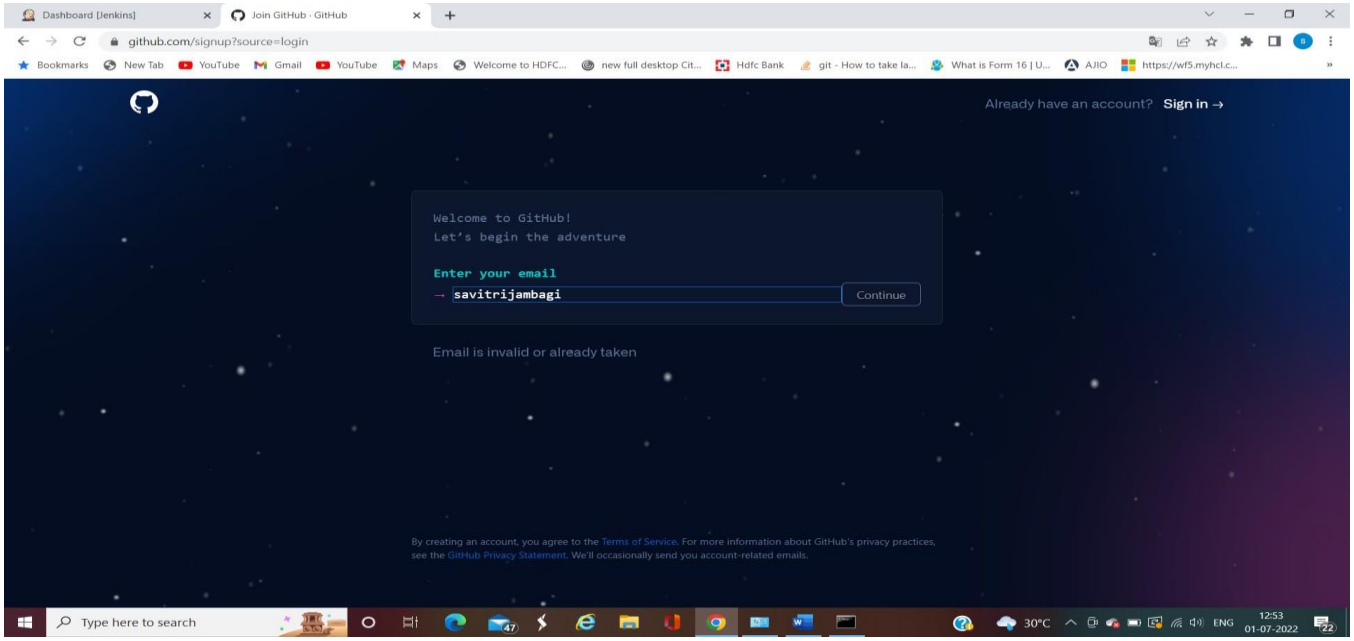
Step 2: create account in GitHub



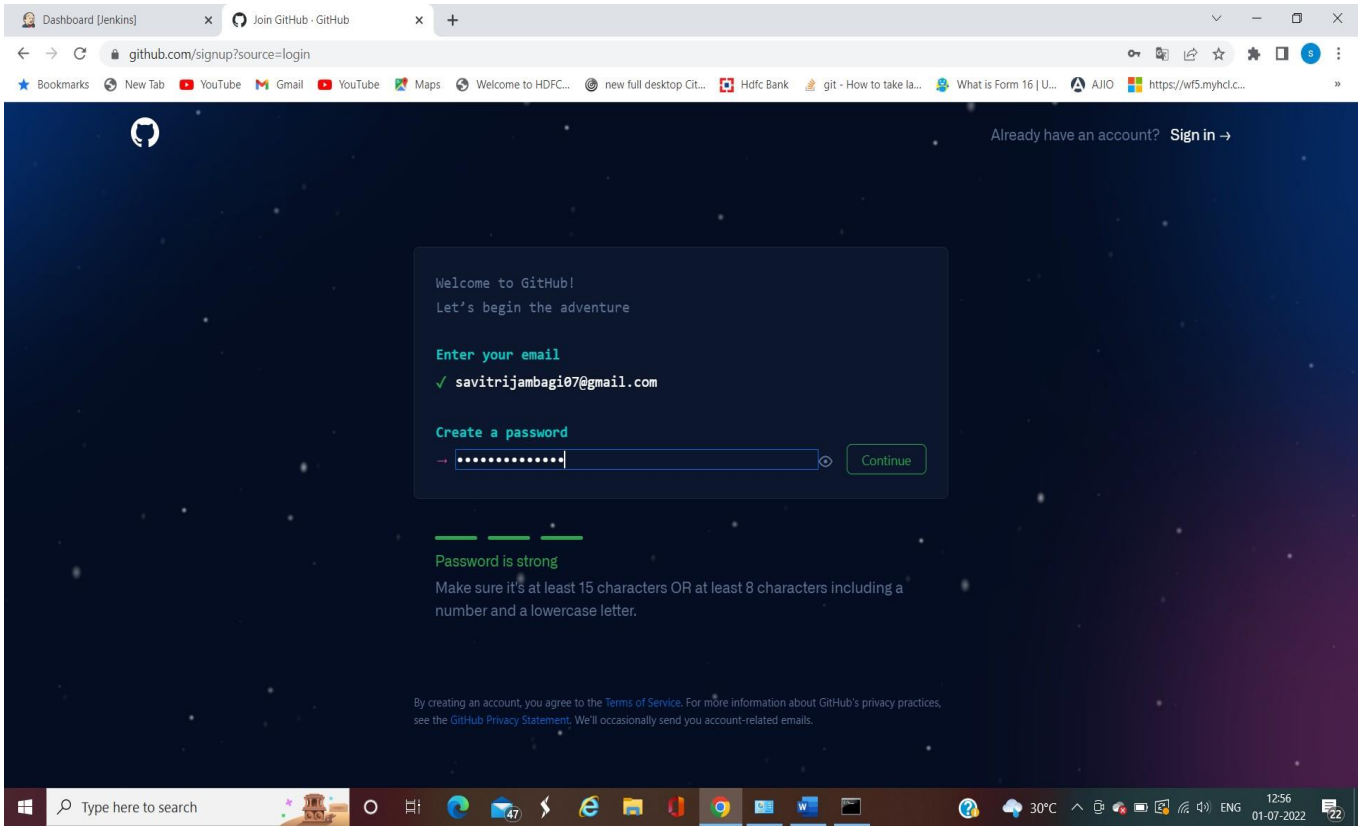
Step 3:Set user name and password



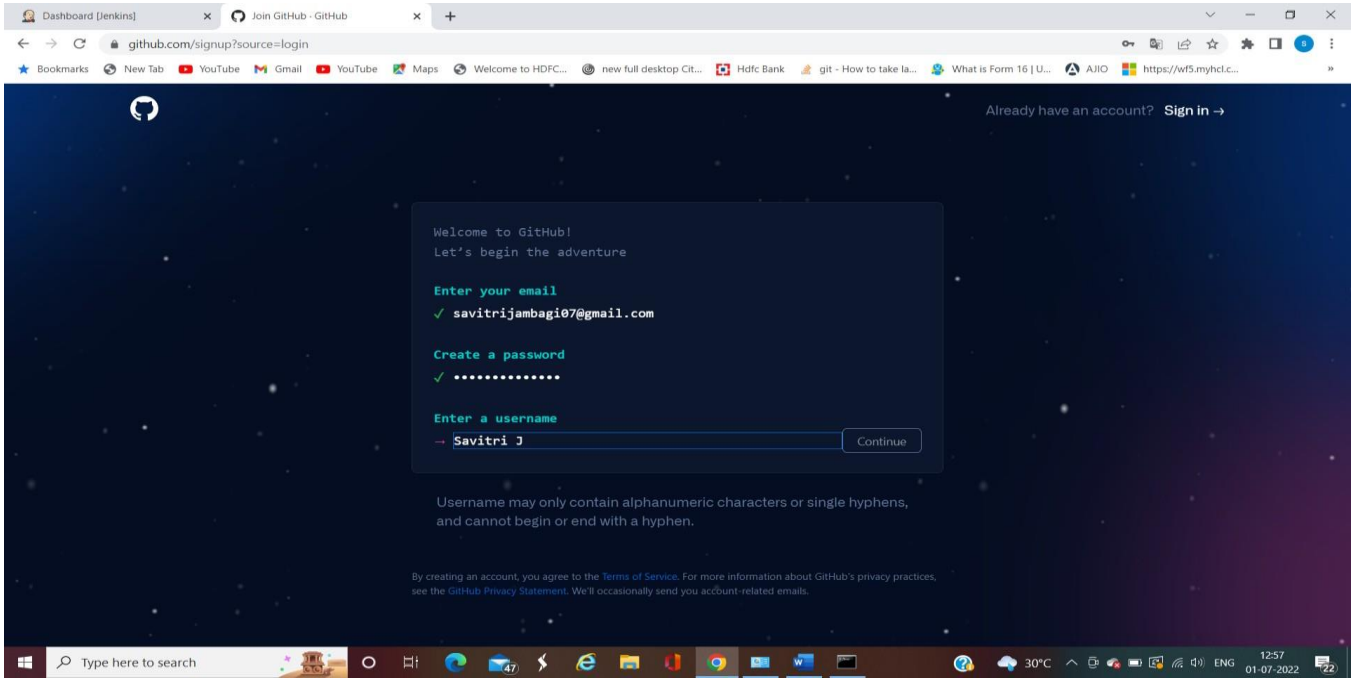
Step 4: enter mail id and continue



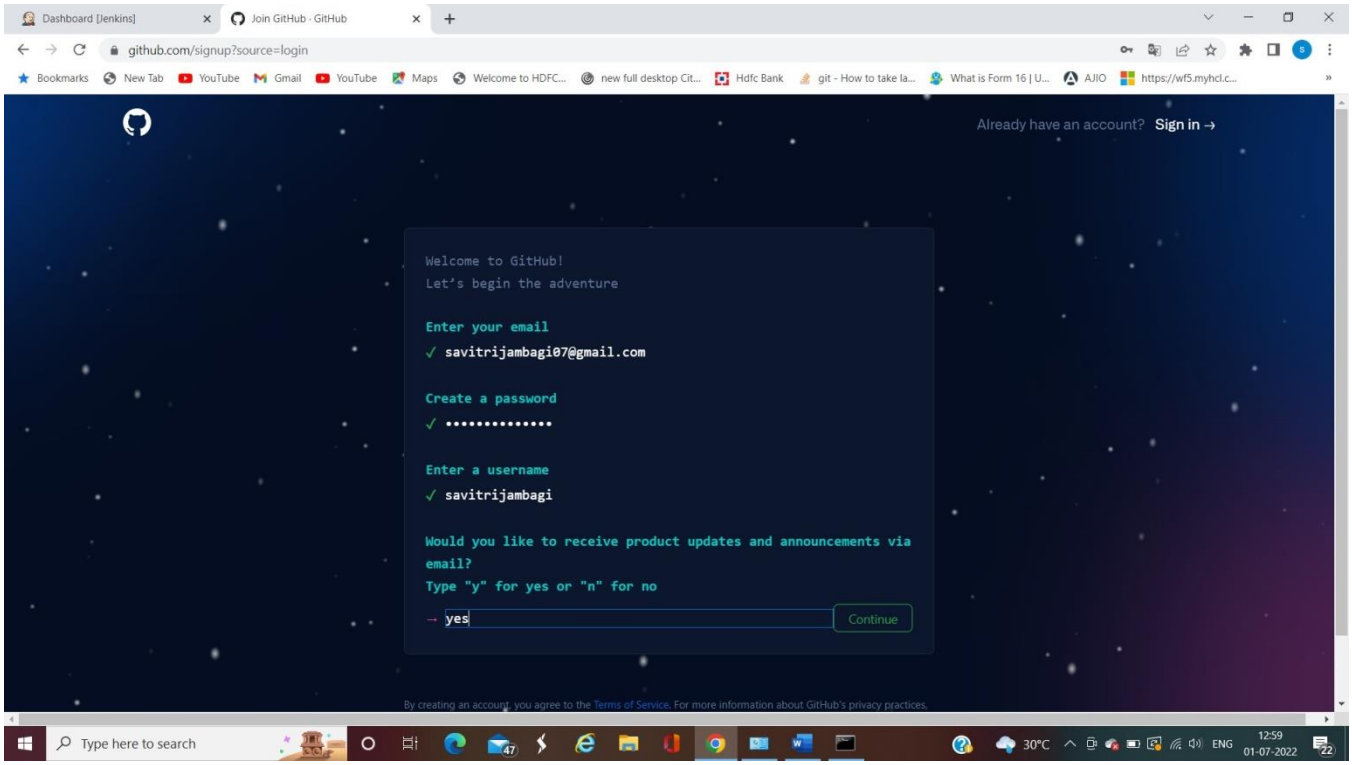
Step 5:Create new password and continue

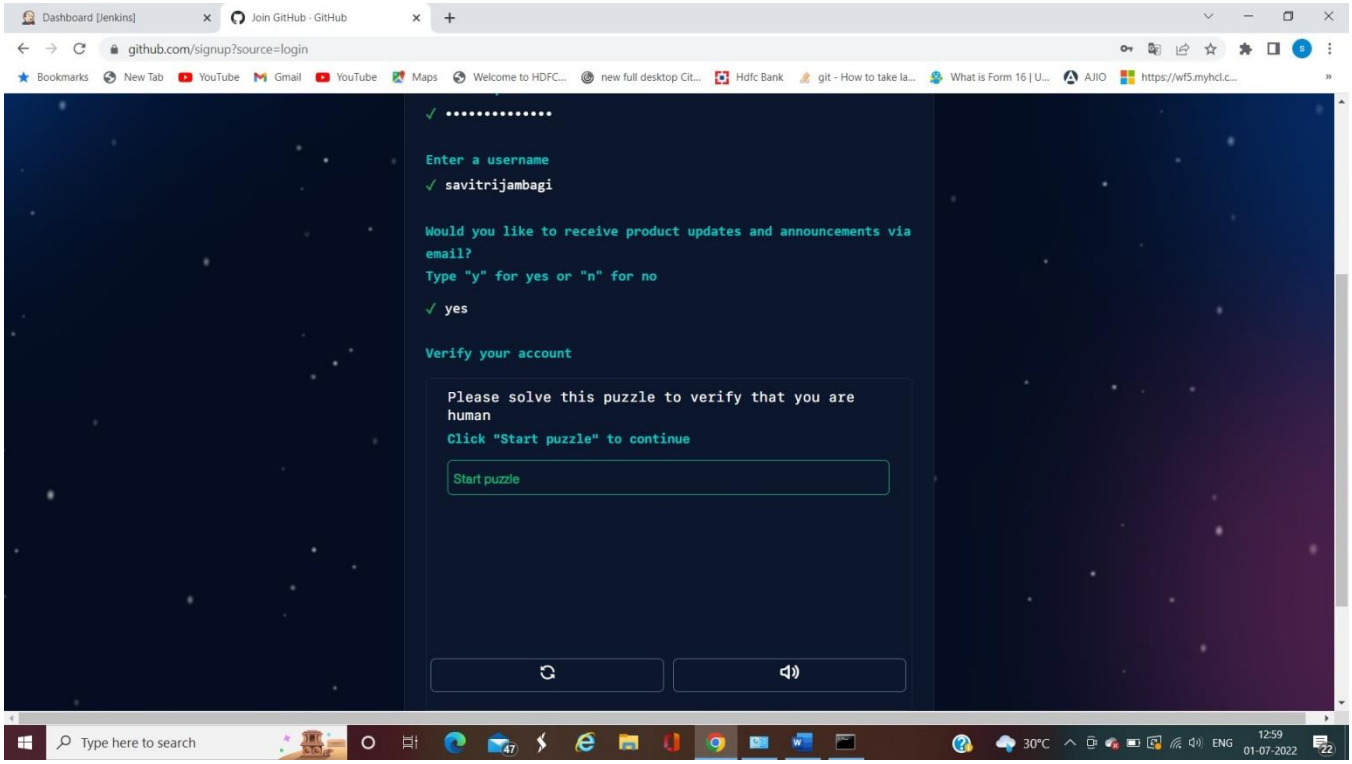


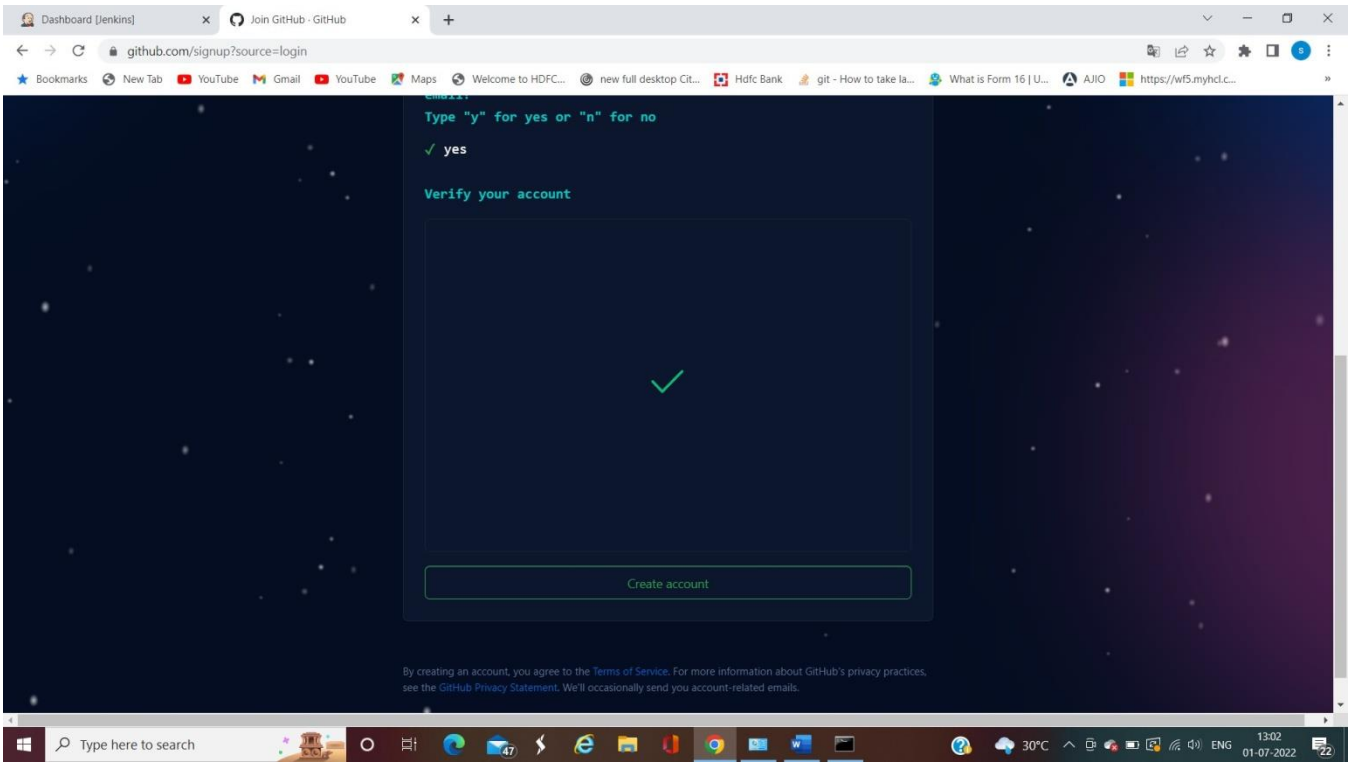
Step 6: Enter user name and continue

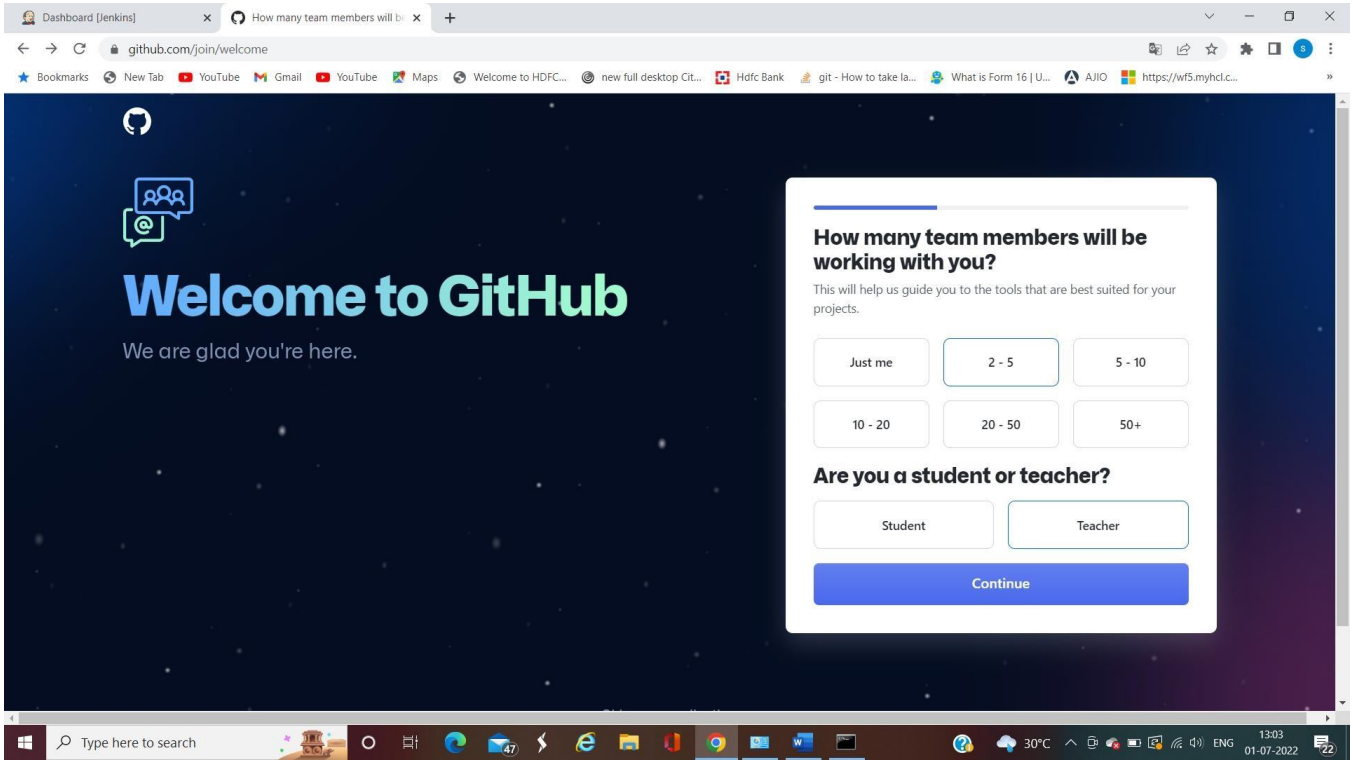


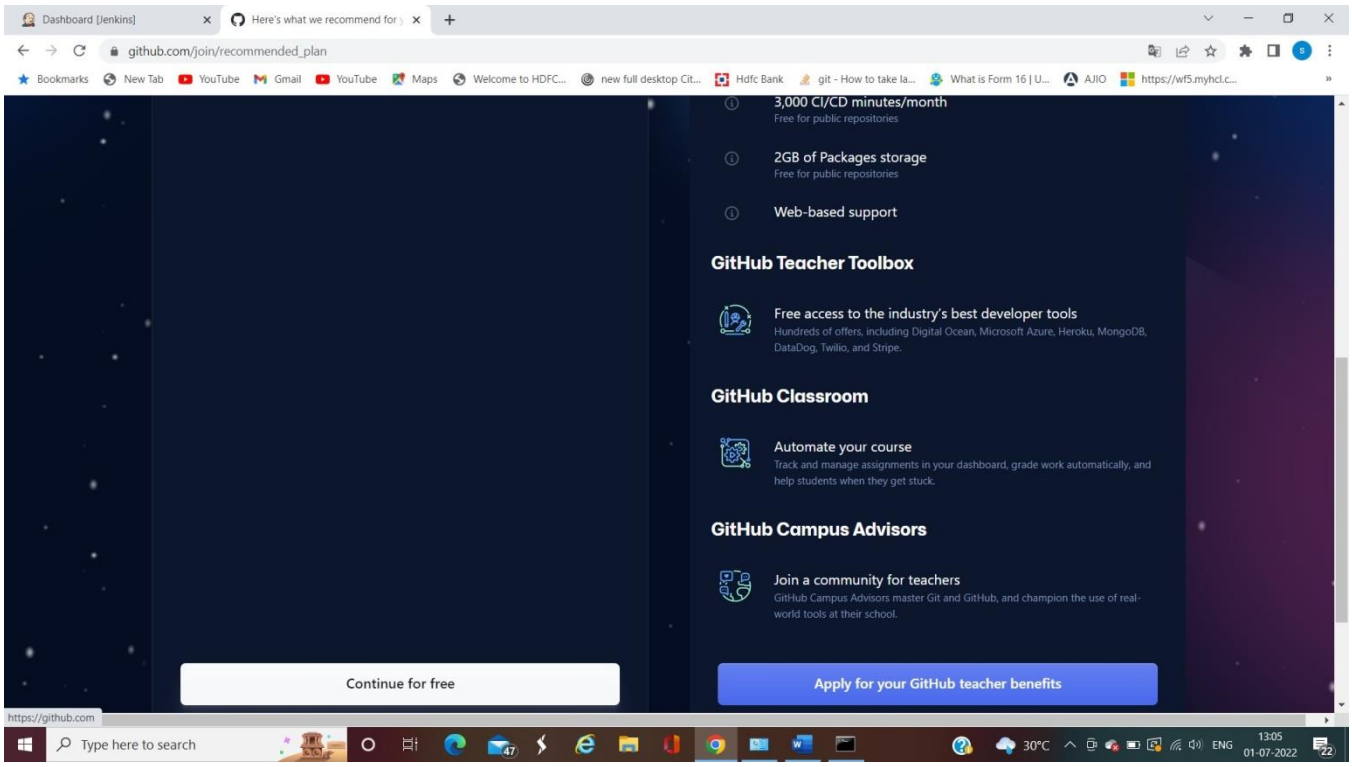
Step 7: Type yes



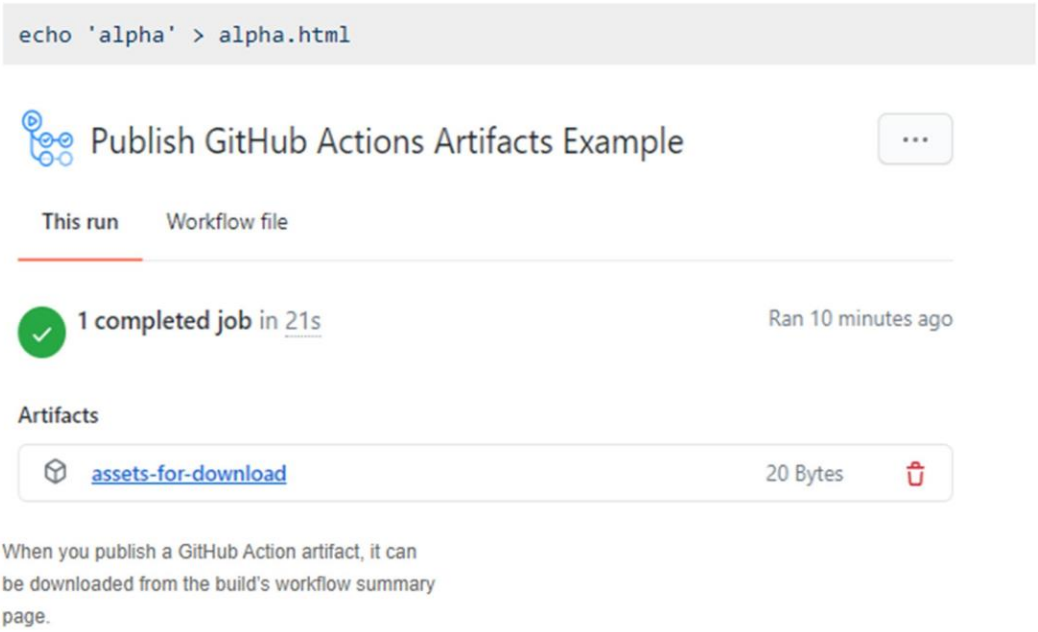

Dashboard [Jenkins]
Join GitHub · GitHub
github.com/signup?source=login
Enter a username
savitrijambagi
Would you like to receive product updates and announcements via email?
Type "y" for yes or "n" for no
yes
Verify your account
Please solve this puzzle to verify that you are human
Click "Start puzzle" to continue
Start puzzle
Type here to search


Dashboard [Jenkins]
Join GitHub · GitHub
github.com/signup?source=login
Type "y" for yes or "n" for no
yes
Verify your account
Create account
By creating an account, you agree to the Terms of Service. For more information about GitHub's privacy practices, see the GitHub Privacy Statement. We'll occasionally send you account-related emails.
Type here to search


Dashboard [Jenkins]
How many team members will b
github.com/join/welcome
Welcome to GitHub
We are glad you're here.
How many team members will be working with you?
This will help us guide you to the tools that are best suited for your projects.
Just me
2 - 5
5 - 10
10 - 20
20 - 50
50+
Are you a student or teacher?
Student
Teacher
Continue
Type here to search
30°C
ENG
13:03
01-07-2022

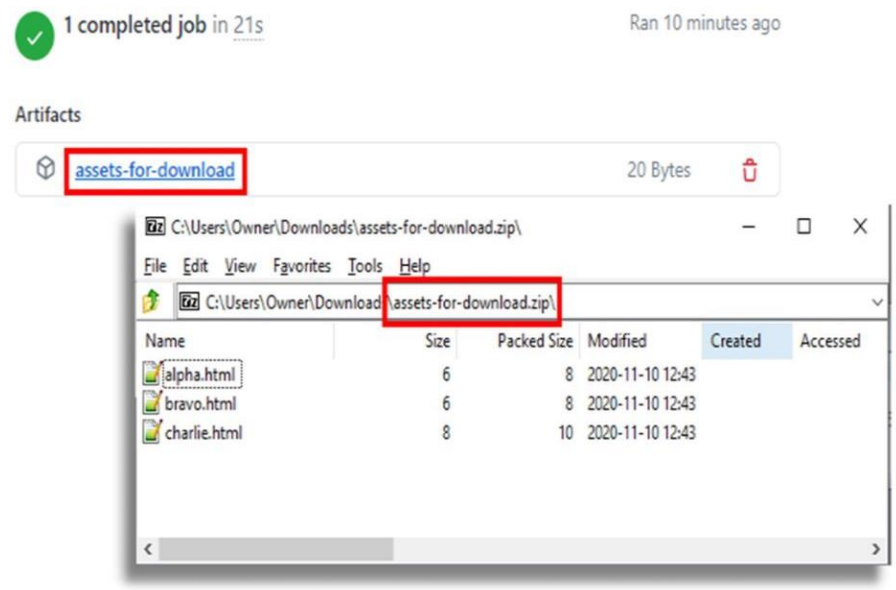

Dashboard [Jenkins]
Here's what we recommend for
github.com/join/recommended_plan
3,000 CI/CD minutes/month
Free for public repositories
2GB of Packages storage
Free for public repositories
Web-based support
GitHub Teacher Toolbox
Free access to the industry's best developer tools
Hundreds of offers, including Digital Ocean, Microsoft Azure, Heroku, MongoDB, DataDog, Twilio, and Stripe.
GitHub Classroom
Automate your course
Track and manage assignments in your dashboard, grade work automatically, and help students when they get stuck.
GitHub Campus Advisors
Join a community for teachers
GitHub Campus Advisors master Git and GitHub, and champion the use of real-world tools at their school.
Continue for free
Apply for your GitHub teacher benefits
https://github.com
Type here to search
30°C
ENG
13:05
01-07-2022

A Git repository is a virtual storage of your project.it allows you to save versions of your code,which you can access when needed



Workflow artifact downloads

- When this build runs, the status page of the workflow will include a link to download a file named assets-for-download.
- zip, which will contain the three files named alpha.html, bravo.html and charlie.html.
- This proves that the script works and makes the GitHub Action artifacts available for download.



The zip file downloaded as a GitHub Action artifact contains all of the selected build files.

Learn version control and configuration management with GIT:

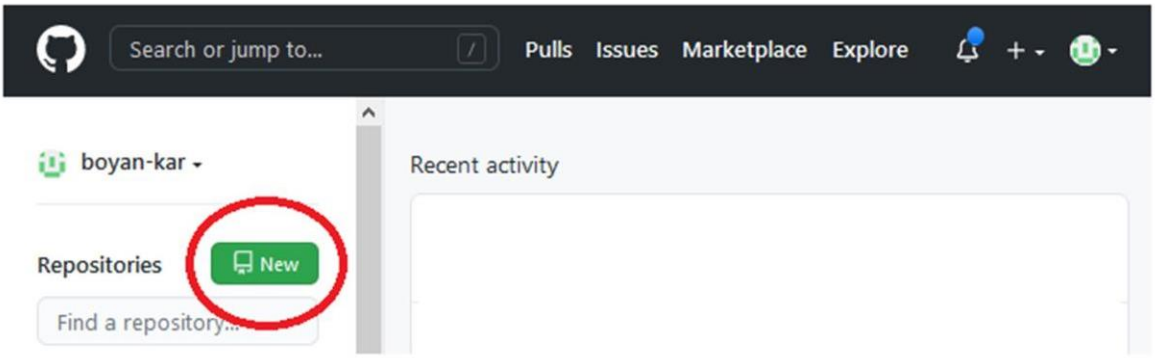
Step 1:On your computer, you need to install Git first. The process will depend on your operating system: please follow the instructions below by clicking the relevant button.

What is a repository?

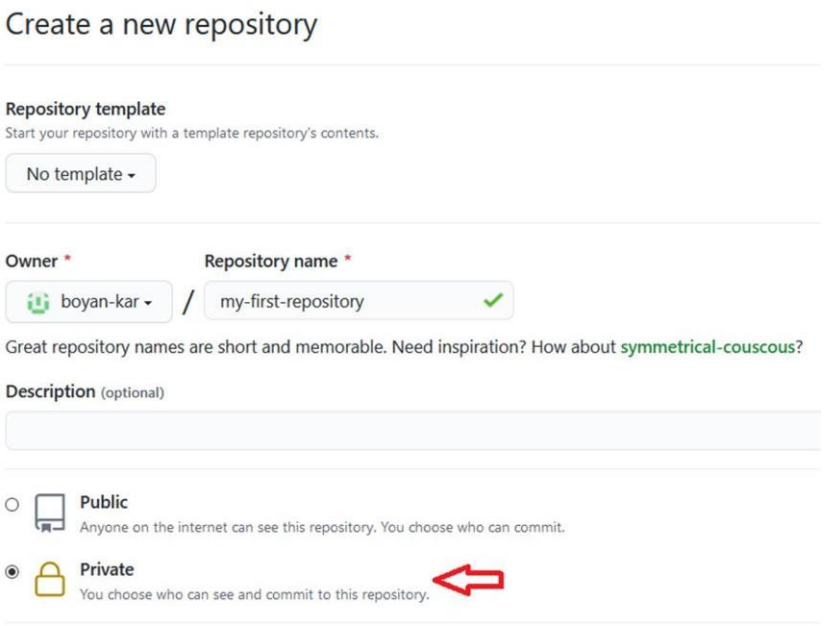
You can think of a repository (*aka* a repo) as a "main folder", everything associated with a specific project should be kept in a repo for that project. Repos can have folders within them, or just be separate files.

2. Create your own repository and project folder structure

To make a repository, go to Repositories/New repository - choose a concise and informative name that has no spaces or funky characters in it.



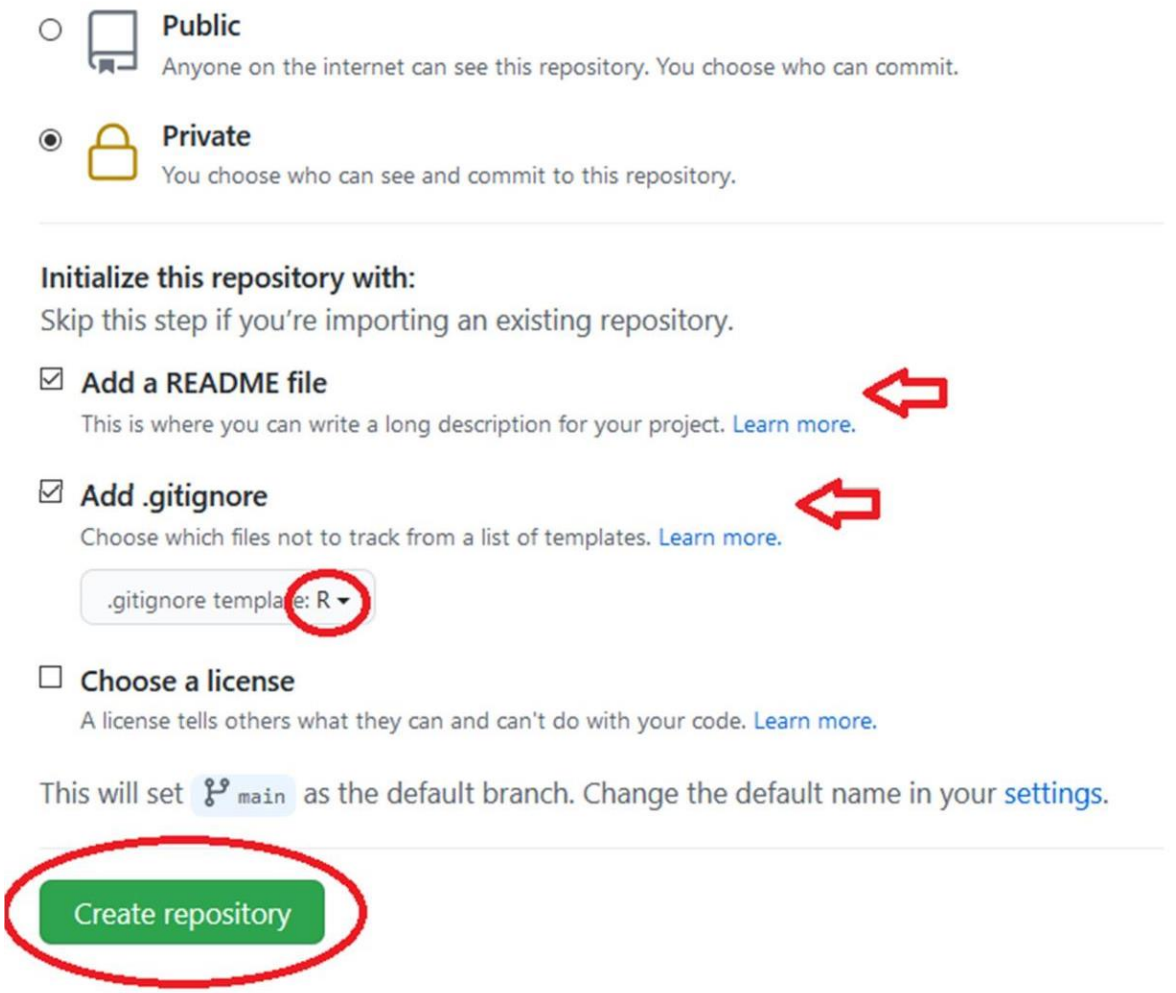
Step 3:Let's create a new private repository. You can call it whatever you like if the name is available.



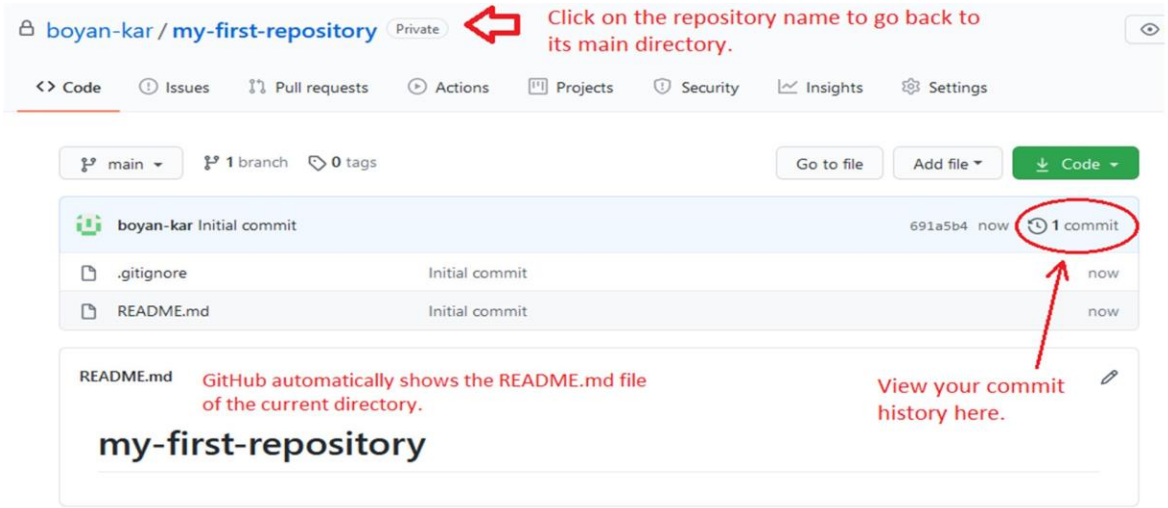
Step 4:Click on Initialise repo with a README.md file. It's common practice for each repository to have a README.md file,

Step 5:We will also create a .gitignore file. This file lets Git know what kind of files should not be included in the repository.

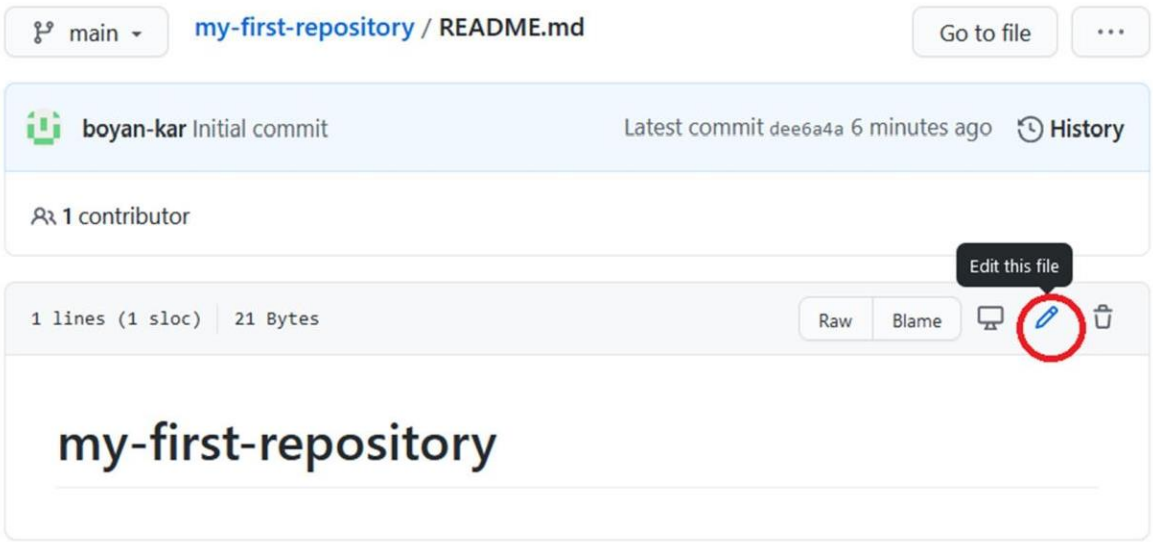
Once you are ready, click on **Create repository**.



Here is how the repository should look:



You can directly edit your README.md file on Github by clicking on the file and then selecting Edit this file.



Configuration management with GIT:

Using GIT for Configuration Management

Step 1:Initialization on a new deployment

Step 2: Updating any configuration, including the default configuration:

Step 3: Resolving Git merge conflicts

Step 4: Identifying the occurrence of a merge conflict:

Step 5: Examining Conflicts

Step 6: Examining differences between your current version and the previous upstream version

- The previous "upstream" version on the ardana branch.

Your current version on the site branch.

He new "upstream" version on the ardana branch.

Step 7: Using stage markers to view clean versions of files (without conflict markers)

Step 8: Resolving the conflict

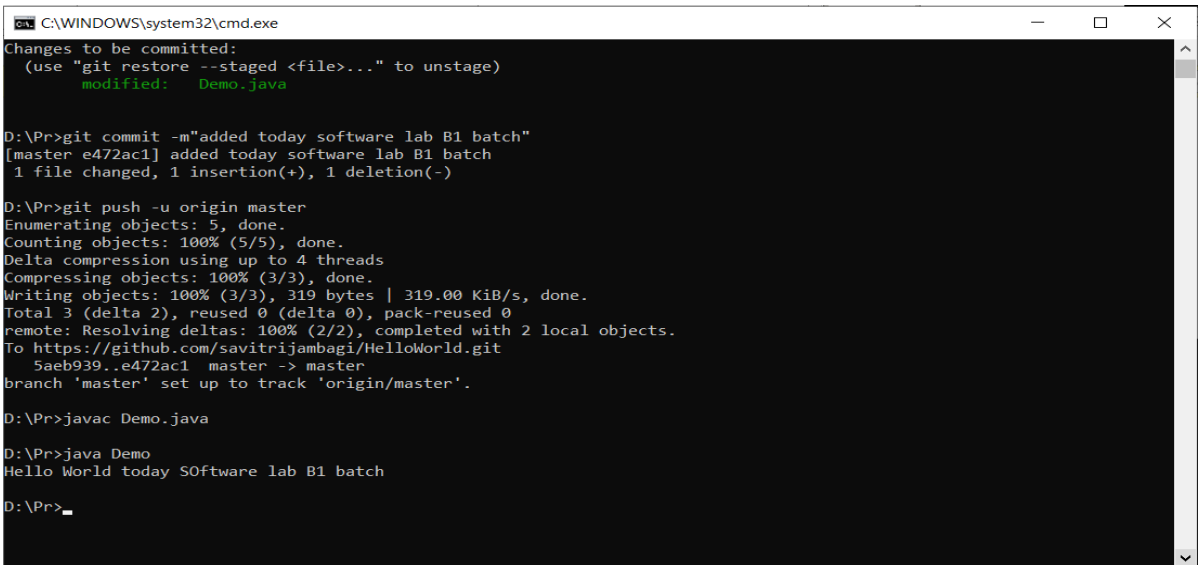
There are two approaches to resolving the conflict:

1. Edit the merged file containing the conflict markers, keeping the change you want to preserve and removing the conflict markers and any changes you want to discard.

2. Take the new upstream version of the file and re-apply any changes you would like to keep from your current version.

Step 9: Resolving the conflict - editing the file containing the conflict markers
Step 10: Resolving the conflict - re-applying your changes to new upstream version

Step 11: Completing the merge procedure
Step 12: Recovering from Errors



WEEK 10

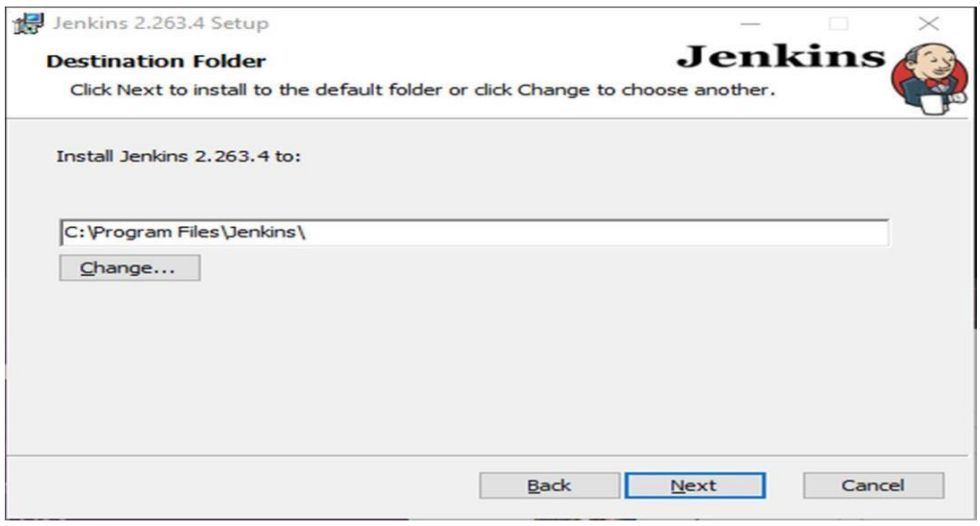
1. Install and configure Jenkins

Step 1: Setup wizard

On opening the Windows Installer, an **Installation Setup Wizard** appears, Click **Next** on the Setup Wizard to start your installation.

Step 2: Select destination folder

Select the destination folder to store your Jenkins Installation and click **Next** to continue.



Step 3: Service logon credentials

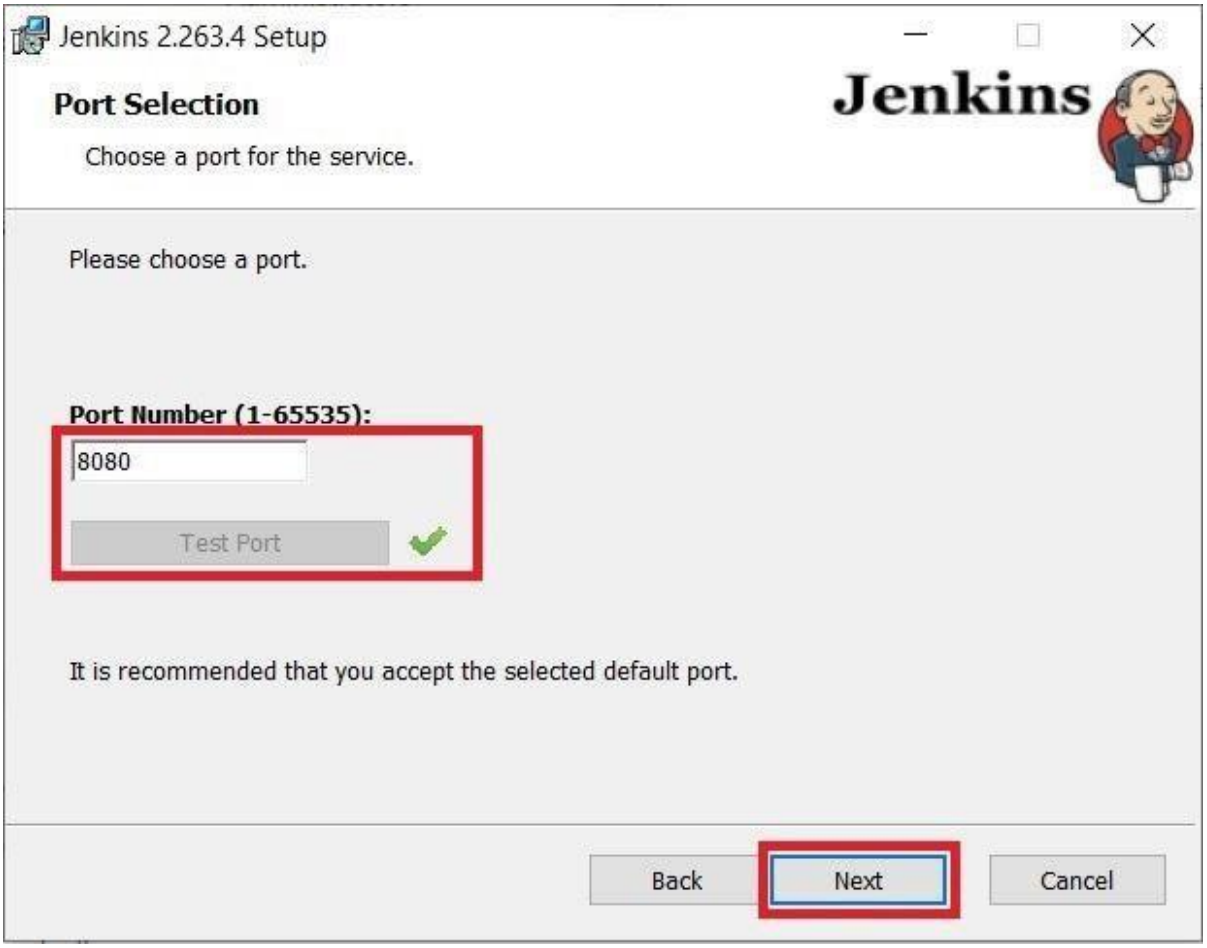
When Installing Jenkins, it is recommended to install and run Jenkins as an independent windows service using a **local or domain user** as it is much safer than running Jenkins using **LocalSystem(Windows equivalent of root)** which will grant Jenkins full access to your machine and services.

To run Jenkins service using a **local or domain user**, specify the domain user name and password with which you want to run Jenkins, click on **Test Credentials** to test your domain credentials and click on **Next**.

If you get **Invalid Logon** Error pop-up while trying to test your credentials, steps explained here to resolve it.

Step 4: Port selection

Specify the port on which Jenkins will be running, **Test Port** button to validate whether the specified port if free on your machine or not. Consequently, if the port is free, it will show a green tick mark as shown below, then click on **Next**.



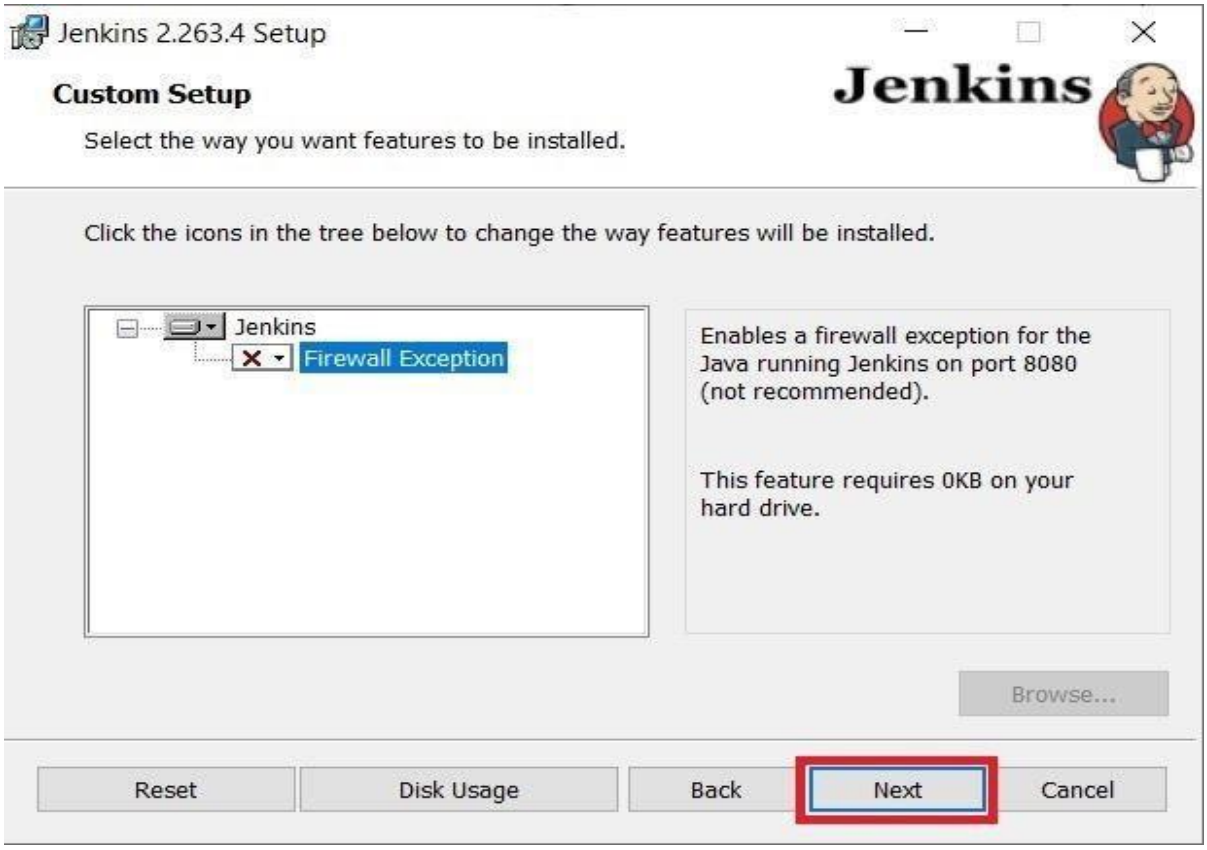
Step 5: Select Java home directory

The installation process checks for Java on your machine and prefills the dialog with the Java home directory. If the needed Java version is not installed on your machine, you will be prompted to install it.

Once your Java home directory has been selected, click on **Next** to continue.

Step 6: Custom setup

Select other services that need to be installed with Jenkins and click on **Next**.



Step 7: Install Jenkins

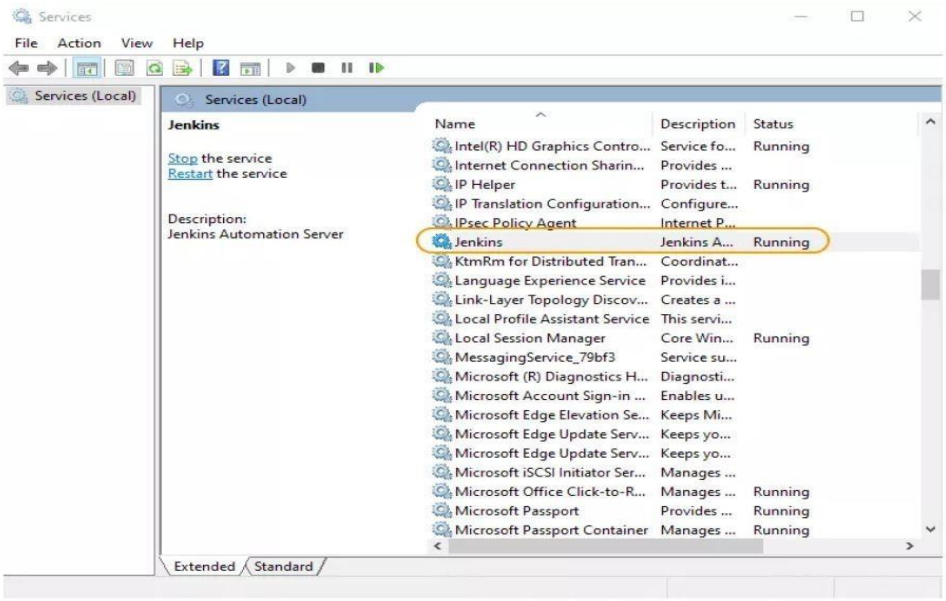
Click on the **Install** button to start the installation of Jenkins.

Additionally, clicking on the **Install** button will show the progress bar of installation, as shown below:

Step 8: Finish Jenkins installation

Once the installation completes, click on **Finish** to complete the installation.

Jenkins will be installed as a **Windows Service**. You can validate this by browsing the **services** section, as shown below:



See the upgrade steps when you upgrade to a new release.

Post-installation setup wizard

After downloading, installing and running Jenkins, the post-installation setup wizard begins.

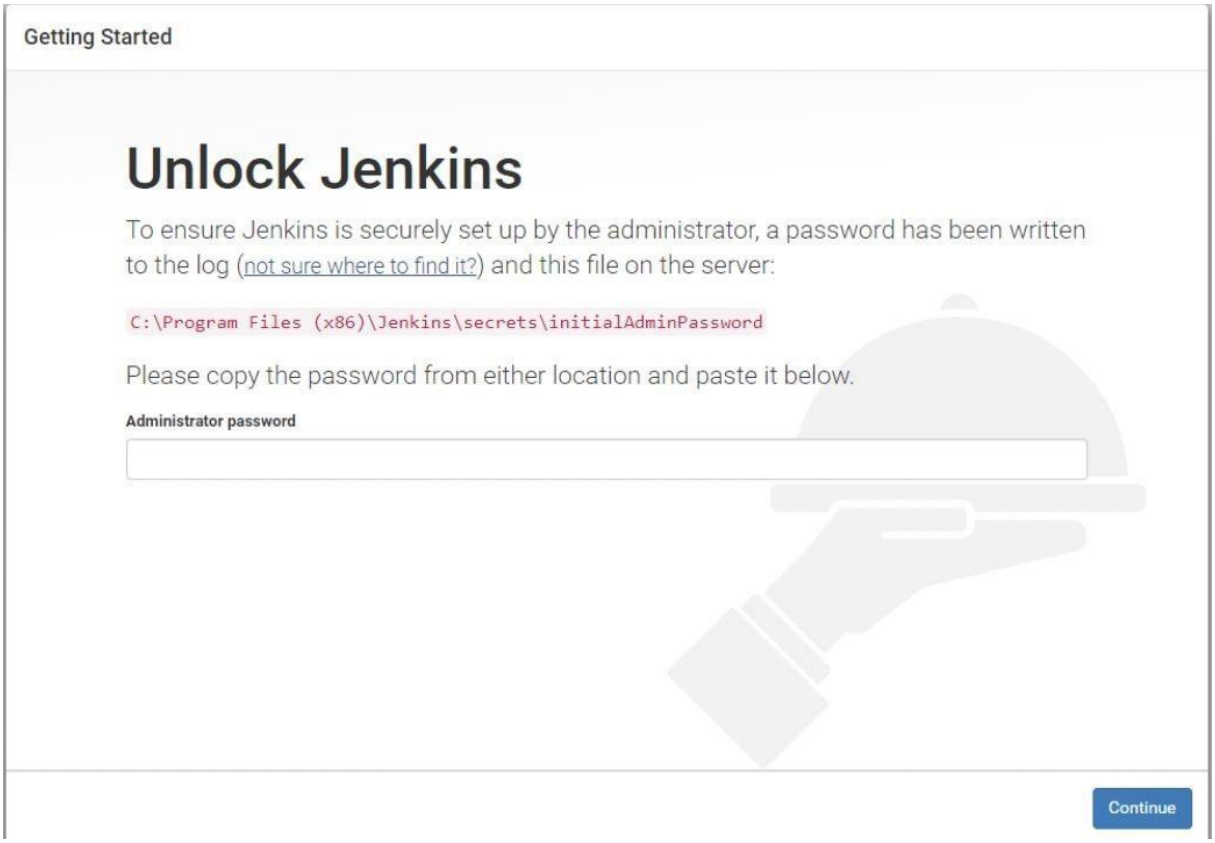
This setup wizard takes you through a few quick "one-off" steps to unlock Jenkins, customize it with plugins and create the first administrator user through which you can continue accessing Jenkins.

Unlocking Jenkins

When you first access a new Jenkins instance, you are asked to unlock it using an automatically-generated password.

Step 1

Browse to http://localhost:8080 (or whichever port you configured for Jenkins when installing it) and wait until the **Unlock Jenkins** page appears.

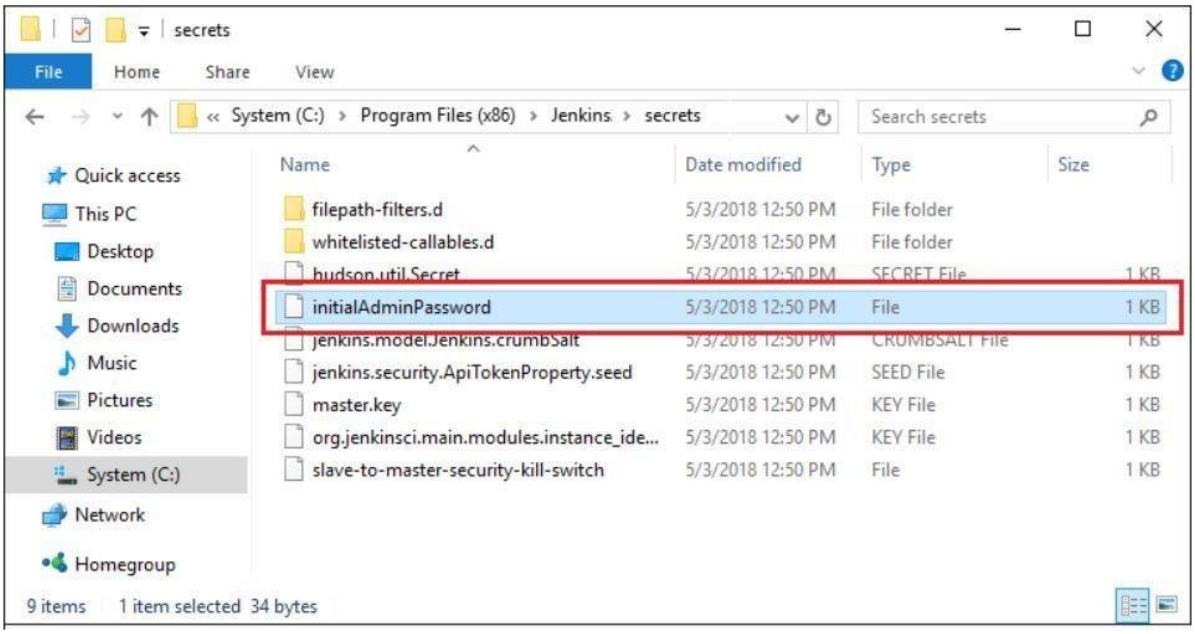


Step 2

The initial Administrator password should be found under the Jenkins installation path (set at Step 2 in Jenkins Installation).

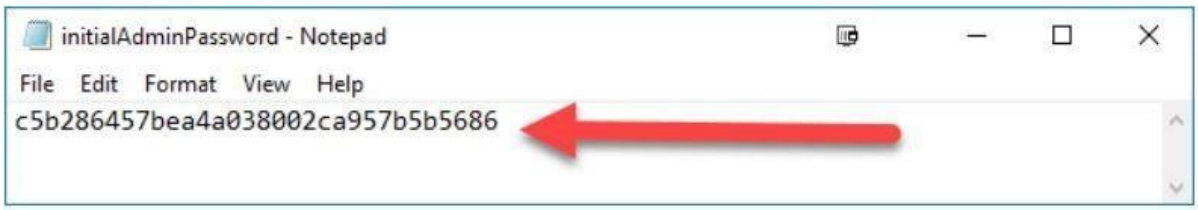
For default installation location to C:\Program Files\Jenkins, a file called **initialAdminPassword** can be found under C:\Program Files\Jenkins\secrets.

However, If a custom path for Jenkins installation was selected, then you should check that location for **initialAdminPassword** file.



Step 3

Open the highlighted file and copy the content of the **initialAdminPassword** file.

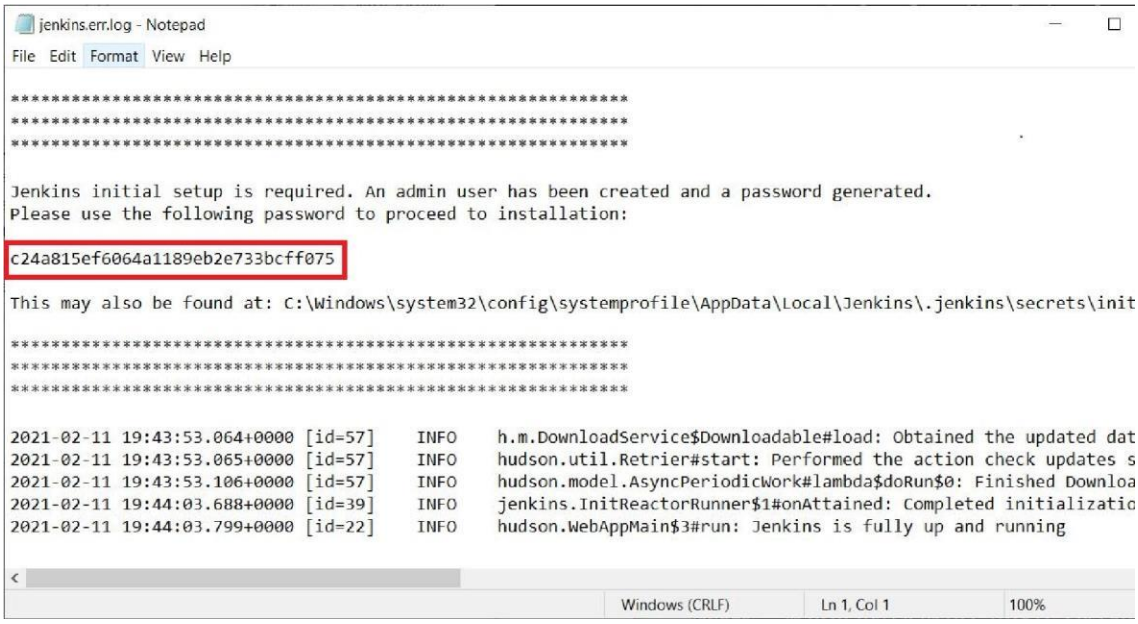


Step 4

On the **Unlock Jenkins** page, paste this password into the **Administrator password** field and click **Continue**.

Notes:

- You can also access Jenkins logs in the **jenkins.err.log** file in your Jenkins directory specified during the installation.
- The Jenkins log file is another location (in the Jenkins home directory) where the initial password can also be obtained.



This password must be entered in the setup wizard on new Jenkins installations before you can access Jenkins's main UI. This password also serves as the default administrator account's password (with username "admin") if you happen to skip the subsequent user-creation step in the setup wizard.

Customizing Jenkins with plugins

After unlocking Jenkins, the **Customize Jenkins** page appears. Here you can install any number of useful plugins as part of your initial setup.

Click one of the two options shown:

- **Install suggested plugins** - to install the recommended set of plugins, which are based on most common use cases.
- **Select plugins to install** - to choose which set of plugins to initially install. When you first

> If you are not sure what plugins you need, choose **Install suggested plugin** install (or remove) additional Jenkins plugins at a later point in time via th **Jenkins** > **Manage Plugins** page in Jenkins.

The setup wizard shows the progression of Jenkins being configured and your chosen set of access the plugin selection page, the suggested plugins are selected by default.

. You can **Manage**

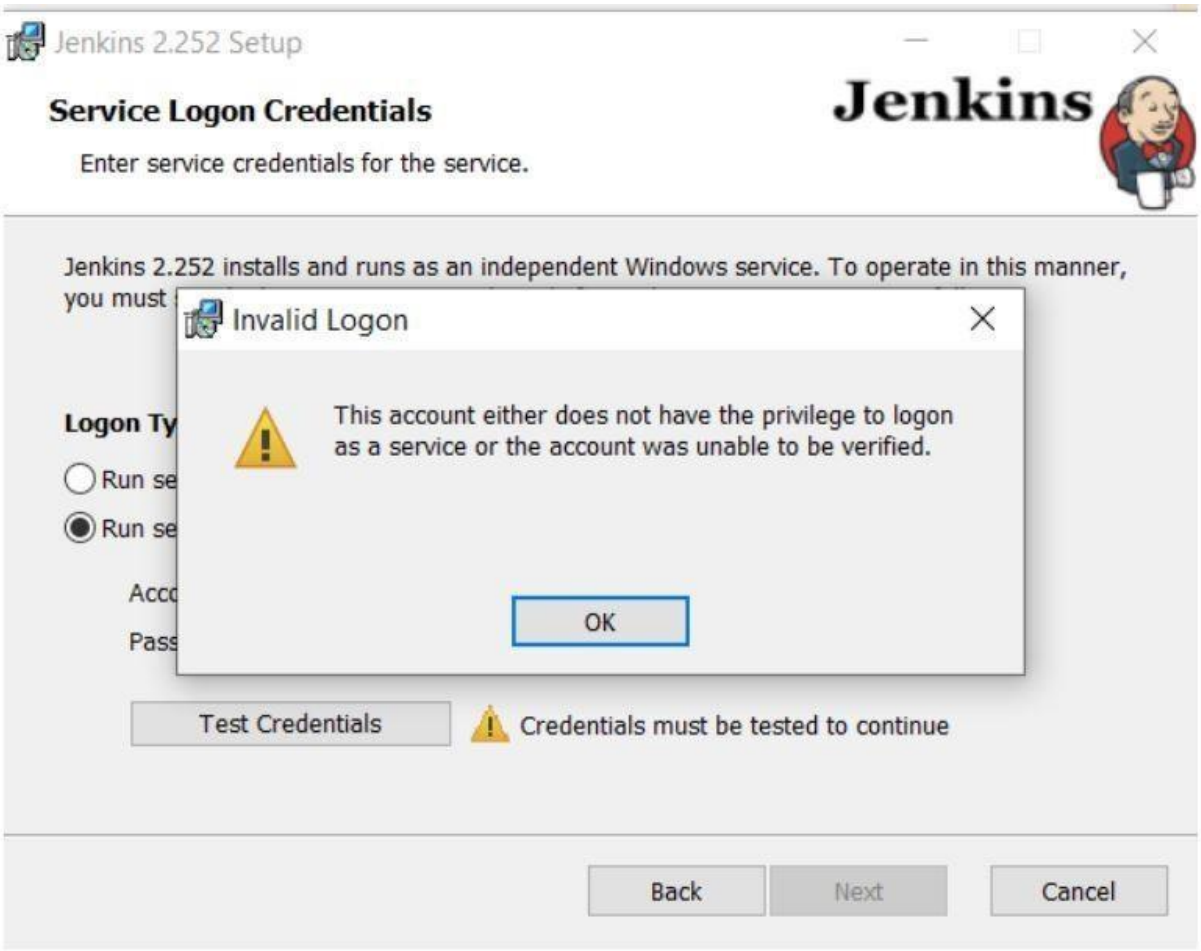
Jenkins plugins being installed. This process may take a few minutes.

Creating the first administrator user

Finally, after customizing Jenkins with plugins, Jenkins asks you to create your first administrator user.

1. When the **Create First Admin User** page appears, specify the details for your administrator user in the respective fields and click **Save and Finish**.
2. When the **Jenkins is ready** page appears, click **Start using Jenkins**. **Notes:**
   - This page may indicate **Jenkins is almost ready!** instead and if so, click **Restart**.
   - If the page does not automatically refresh after a minute, use your web browser to refresh the page manually.
3. If required, log in to Jenkins with the credentials of the user you just created and you are ready to start using Jenkins! Troubleshooting Windows installation

Invalid service logon credentials



When installing a service to run under a domain user account, the account must have the right to logon as a service. This logon permission applies strictly to the local computer and must be granted in the Local Security Policy.

Perform the following steps below to edit the Local Security Policy of the computer you want to define the 'logon as a service' permission:

1. Logon to the computer with administrative privileges.
2. Open the **Administrative Tools** and open the **Local Security Policy**
3. Expand **Local Policy** and click on **User Rights Assignment**
4. In the right pane, right-click **Log on as a service** and select properties.
5. Click on the **Add User or Group…** button to add the new user.
6. In the **Select Users or Groups** dialogue, find the user you wish to enter and click **OK**
7. Click **OK** in the **Log on as a service Properties** to save changes.

After completing the steps above, try logging in again with the added user.

2. Create a container image for Hello world project

Create a container image for Hello world project And Setup build for container image using Jenkins (Hello world application)

How to Create a New Build Job in Jenkins

The freestyle build job is a highly flexible and easy-to-use option. You can use it for any type of project; it is easy to set up, and many of its options appear in other build jobs. Below is a step by step process to create job in Jenkin.

Step 1) Login to Jenkins

To create a Jenkins freestyle job, log on to your Jenkins dashboard by visiting your Jenkins installation path. Usually, it will be hosted on localhost at http://localhost:8080 If you have installed Jenkins in another path, use the appropriate URL to access your dashboard as shown in the below Jenkins job creation example.

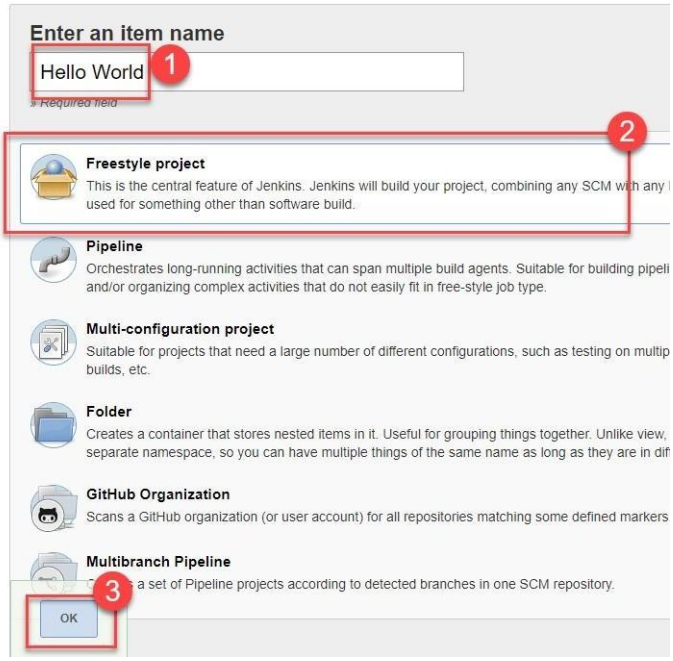
Step 2) Create New Item

Click on "**New Item**" at the top left-hand side of your dashboard.

Step 3) Enter Item details

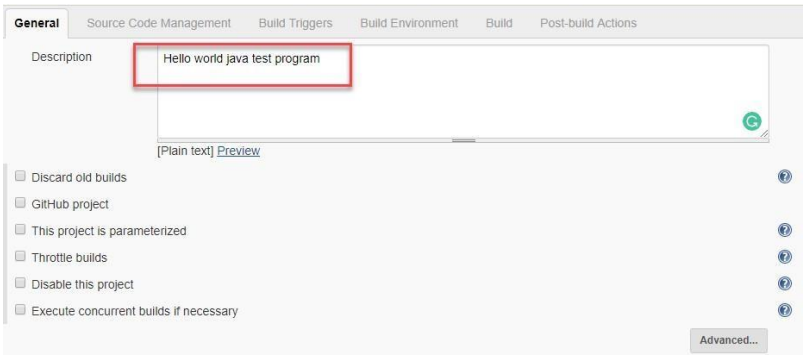
In the next screen,

1. Enter the name of the item you want to create. We shall use the "Hello world" for this demo.
2. Select Freestyle project
3. Click Okay



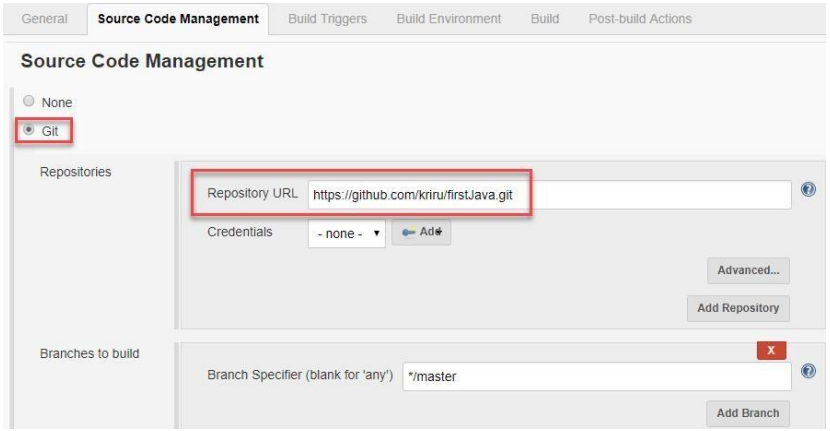
Step 4) Enter Project details

Enter the details of the project you want to test.



Step 5) Enter repository URL

Under Source Code Management, Enter your repository URL. We have a test repository located at https://github.com/kriru/firstJava.git



It is also possible for you to use a local repository.

If your GitHub repository is private, Jenkins will first validate your login credentials with GitHub and only then pull the source code from your GitHub repository.

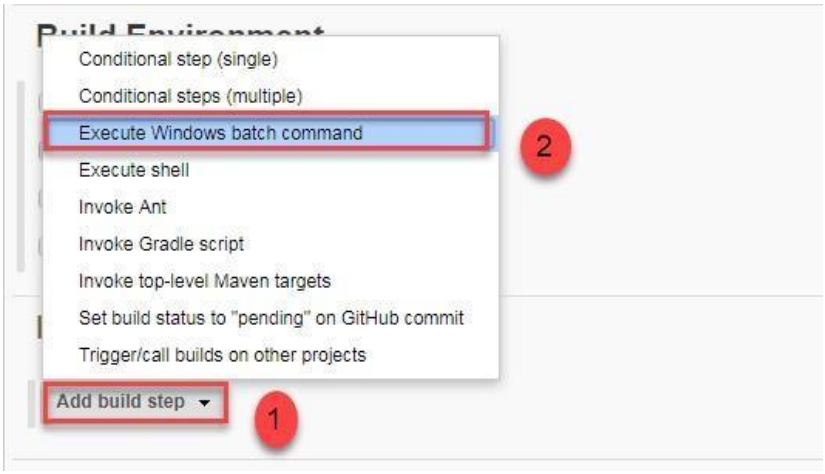
Step 6) Tweak the settings

Now that you have provided all the details, it's time to build the code. Tweak the settings under the **build** section to build the code at the time you want. You can even schedule the build to happen periodically, at set times.

Under **build**,

1. Click on "**Add build step**"

2. Click on "**Execute Windows batch command**" and add the commands you want to execute during the build process.



Here, I have added the java commands to compile the java code.

I have added the following windows commands:
javac HelloWorld.java

java HelloWorld

Step 7) Save the project

When you have entered all the data,

1. Click **Apply** 2.

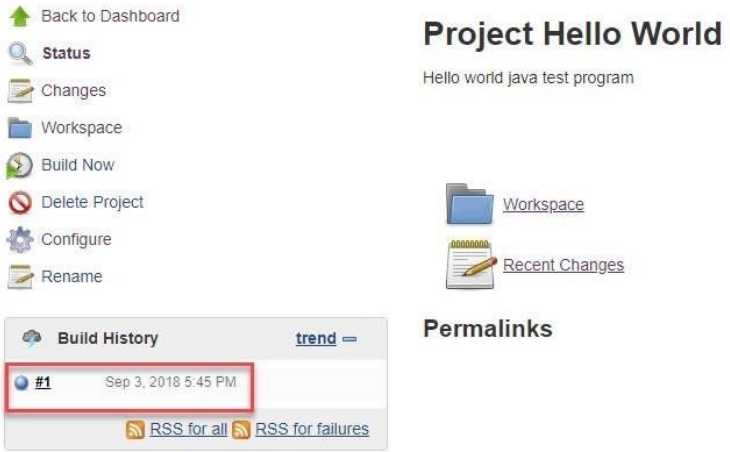
Save the project.

Step 8) Build Source code

Now, in the main screen, Click the **Build Now** button on the left-hand side to build the source code.

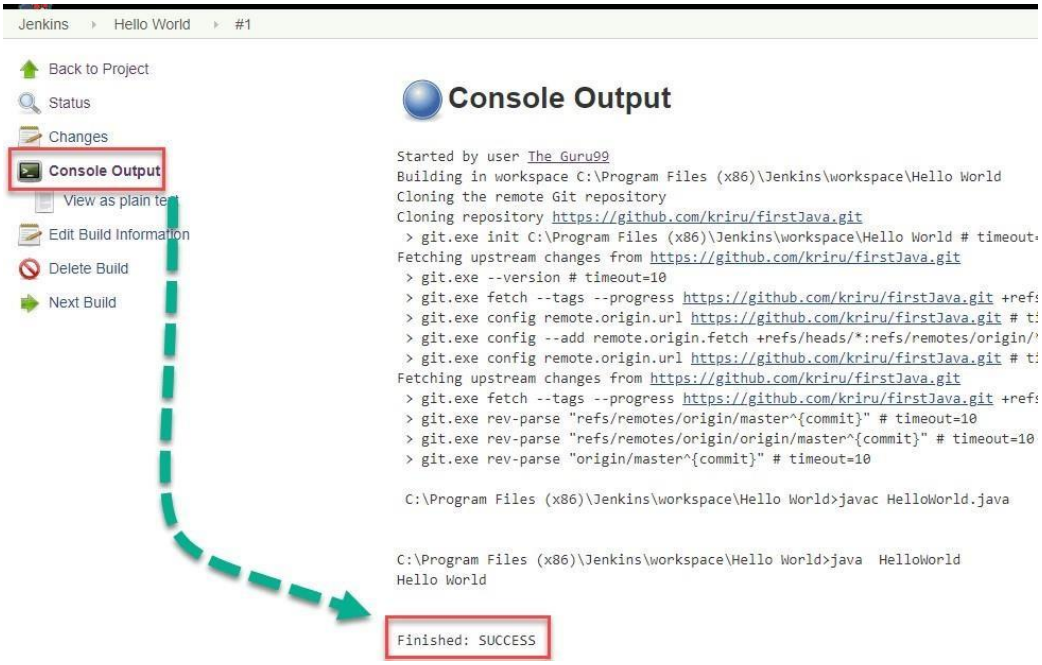
Step 9) Check the status

After clicking on **Build now,** you can see the status of the build you run under **Build History**.



Step 10) See the console output

Click on the **build number** and then Click on **console output** to see the status of the build you run. It should show you a success message, provided you have followed the setup properly as shown in the below Jenkins create new job example.



In sum, we have executed a HelloWorld program hosted on GitHub. Jenkin pulls the code from the remote repository and builds continuously at a frequency you define.

WEEK 12

2.Use SonarQube to capture code quality metrics

- **What is SonarQube ?**

SonarQube is an open-source platform developed by SonarSource for continuous inspection of code quality. Sonar does static code analysis, which provides a detailed report of bugs, code smells, vulnerabilities, code duplications.

- **Features:**

- **Can perform automatic reviews with static code analysis for many problems that affect code quality.**
- **Helps maintain quality and reliability of code projects over its life-span using advanced quality test metrics and graphs.**
- **Integrates seamlessly with other tools like Jenkins, Atlassian, MSBuild, etc, which helps productive workflow.**
- **Supports most popular programming languages like Java, Python, JavaScript, etc (along with framework support).**

- **ADVANTAGES FOR SONARQUBE TOOL**

1. **Architecture and Design**
2. **Unit tests**
3. **Duplicated code**
4. **Potential bugs**
5. **Complex code**
6. **Coding standards**
7. **Comments**

- **SonarQube For Metrics**

- **Complexity.**
- **Duplications.**
- **Issues.**
- **Maintainability.**
- **Reliability.**
- **Security.**
- **Size.**

- **Tests.**

➢ **How to Use SonarQube Tool For Code Quality:**

Step 1: Download and Unzip SonarQube
Step 2: Run the SonarQube local server
Step 3: Start a new SonarQube project
Step 4: Setup Project properties and SonarScanner Step
5: View your analysis report on Sonar Dashboard

➢ **What is SonarQube and why it is used?**

SonarQube (formerly Sonar) is **an open-source platform developed by SonarSource for continuous inspection of code quality to perform automatic reviews with static analysis of code to detect bugs, code smells on 17 programming languages**.

➢ **INSTALLATION PROCESS FOR SONAR QUBE**

Step 1:In the browser search download sonar qube 8.9lts
Step 2:Click download sonar qube
Step 3:Scroll down and click on the sonar qube 8.9(community edition)
Step 4:In the computer file open sonar qube application
Step 5:In the solar qube application open bin
Step 6:IN the bin application select window –x86-64,select start sonar.bat
Step 7:Open start sonar.bat copy the application in CP(command prompt)coppied application press enter
Step 8:END

WEEK 13

1. Organize Roleplay to understand the roles and responsibilities of QA and QC team.

Roles and Responsibilities of Quality Assurance(QA)

Strategic roles and responsibilities of a Quality Assurance Manager

In addition to their day-to-day duties as quality assurance managers, they may be asked to assume other strategic positions such as:

- Managing the overall performance of the quality department;
- Ensuring compliance with government regulations;
- Support the development of new products;
- Developing policies for the quality management system;
- Providing technical support to customers;
- Serving on committees responsible for developing and implementing strategies;
- Evaluating the effectiveness of existing programs;
- Monitoring changes in market conditions;
- Preparing reports about current trends and future plans;
- Conducting research into emerging technologies;
- Working with outside consultants; and
- Help develop marketing strategies designed to increase sales.
- Other tasks assigned by senior executives.

Typical Skills of a Quality Assurance Manager

- The following skills may be found helpful in this position:
- Communication: The ability to communicate effectively both orally and in writing.
- Organization: A good sense of orderliness and time management.
- Problem-solving – An aptitude for analyzing situations and formulating solutions.
- Teamwork – Ability to get along well with others.
- Leadership – Leadership qualities such as initiative, self-confidence, assertiveness, decisiveness, and diplomacy.
- Creativity – Creative thinking abilities including imagination, originality, resourcefulness, flexibility, adaptability, and inventiveness.
- Judgment – Judgmental capabilities include discrimination, discernment, foresight, objectivity, and sound judgment.
- Analytical Thinking – The ability to think logically and critically about issues and solve problems.
- Inquiry – Curiosity and interest in learning new things.
- Decision-Making – Decision-making skills that involve choosing alternatives and evaluating their relative merits.
- Planning – Planning skills that enable one to anticipate future needs and devise appropriate courses of action.
- Time Management – Time management skills that allow you to organize your activities efficiently and keep on schedule.

- Self Control – Self-control refers to the capacity to delay gratification and resist impulses.
- Adaptability – Adaptability involves the ability to adjust behaviour to suit changing circumstances.
- Attention To Detail – Attention to detail can mean paying close attention to small details while performing routine tasks.
- Technical Skills - Technical skills and experience related to the industry.

Roles and Responsibilities of Quality Control(QC)

Responsibilities for Quality Control Inspector

- Inspect products to ensure that they meet quality standards
- Create tests for quality control of products
- Disassemble product parts to inspect them individually
- Monitor production operations to ensure conformance to company specifications
- Direct assembly adjustments to ensure operations reflect quality standards
- Ensure products meet customer expectations based on company objectives
- Communicate the results of inspections and put forward corrective suggestions
- Write reports to document deficiencies and errors of products
- Carry out quality assessment measures of all the products ready to be shipped and incoming raw materials
- Take a thorough look at the plans, specifications, and blueprints to understand the product requirements
- Reject all the incoming raw materials fail to meet quality expectations and report the issue to the concerned department at the earliest
- Resolving quality-related issues adhering to deadlines
- Providing training to the quality assurance team
- Design an efficient design protocol which can be used across all domain
- Prepare documentation of the inspection process, which includes detailed reports and performance records
- Recommend improvement measures to the production process to ensure quality control standards are met
- Guide the production team about the quality control issues to enhance the quality of the product
- Monitor customer satisfaction levels
- Monitor the production phase at various levels

2.Audit the artifacts produced in previous sessions

Auditing session activity

In addition to providing information about current and completed sessions in the Systems Manager console, Session Manager provides you with the ability to audit session activity in your AWS account using AWS CloudTrail.

CloudTrail captures session API calls through the Systems Manager console, the AWS Command Line Interface (AWS CLI), and the Systems Manager SDK. You can view the information on the CloudTrail console or store it in a specified Amazon Simple Storage Service (Amazon S3) bucket. One Amazon S3 bucket is used for all CloudTrail logs for your account. For more information, see Logging AWS Systems Manager API calls with AWS CloudTrail.

Monitoring session activity using Amazon EventBridge (console)

With EventBridge, you can set up rules to detect when changes happen to AWS resources. You can create a rule to detect when a user in your organization starts or ends a session, and then, for example, receive a notification through Amazon SNS about the event.

EventBridge support for Session Manager relies on records of API operations that were recorded by CloudTrail. (You can use CloudTrail integration with EventBridge to respond to most AWS Systems Manager events.) Actions that take place within a session, such as an exit command, that don't make an API call aren't detected by EventBridge.

The following steps outline how to initiate notifications through Amazon Simple Notification Service (Amazon SNS) when a Session Manager API event occurs, such as **StartSession**.

To monitor session activity using Amazon EventBridge (console)

1. Create an Amazon SNS topic to use for sending notifications when the Session Manager event occurs that you want to track.
   For more information, see Create a Topic in the *Amazon Simple Notification Service Developer Guide*.
2. Create an EventBridge rule to invoke the Amazon SNS target for the type of Session Manager event you want to track.

For information about how to create the rule, see Creating an EventBridge Rule That Triggers on an Event from an AWS Resource in the *Amazon EventBridge User Guide*.

As you follow the steps to create the rule, make the following selections:

- For **Service Name**, choose **Systems Manager**.
- For **Event Type**, choose **AWS API Call through CloudTrail**.
- Choose **Specific operation(s)**, and then enter the Session Manager command or commands (one at a time) you want to receive notifications for. You can choose **StartSession**, **ResumeSession**, and **TerminateSession**. (EventBridge doesn't support Get*, List*, and Describe* commands.)
- For **Targets**, choose **SNS topic**. For **Topic**, choose the name of the Amazon SNS topic you created in Step 1.