Web

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indespensable technology for e-commerce, govt, transportation, etc.

delivery vehicle that takes raw info and structure that info in a structured way.

WEB BROWSER :- a software tool that enables us to interact with these technologies.

Active Communication → you provide info such that you retreive that info in customised form via some interface acc. to your wish.

Passive Comm^n → we have info but no direct control is there over info type & structure.

Eg. blogs, ebooks, etc.

Web Application :- is a vehicle that acquire raw information, structure it, build a pkg, presentable form, delivers it to the customer.

Eg. Ebook.

Web based System :- When web appl^n is combined with client server hardware, then put into OS, then it is combined with some Network software and Browser.

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Are webapps really a computer software?

↳ Yes.

↳ They are a collection of executable data & instructions that provides some functionality to the user.

ATTRIBUTES OF WEB APP" or, Characteristics

1. → Network intensiveness
2. → Concurrency
3. → Unpredicted load
4. → Performance
5. → Availability
6. → Data Driven
7. → Context Sensitive
8. → Continuous Evolution
9. → Immediacy
10. → Security
11. → Aesthetic

(1). A web appl" resides on network and must serve needs of different community.

(2). A large no of users may use the same appl" at the same time.

(3). No. of hits or No. of loads inc. or dec. depending on the situation.

(4). It includes response time, waiting time, etc.

(5). Web appln should be available all the time.

(6). Primary appln is to drive data in form of text, audio & video to the user.

(7). Quality content should be available on web appln not a waste data. Audios & Videos are more preferred. nowadays.

(8). Web app content keeps on changing ie. it should be kept updated with its type and attributes as the world is continuously changing.

(9). Immediacy :- Whatever info is req, it should be retrieval immediatly.
Some sites have fixed access time to them.
→ Compelling need to get software to market quickly.

(10).

(11). Aesthetic :- Appearance of website.
→ It look and feel should be pleasing & acceptable by customer.
→ undeniable part of web app.

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Categories

Applications of Web Applications based on their functionality.

Functionality / Category	Example
1. Informational	online newspaper, product catalogue, newsletters, manuals, reports, online classifieds, online books
2. Interactive (query based)	Registration form, customized information presentation, online games.
3. Transactional	online shopping (ordering goods & services), online banking, online reservation system, online payment of bills.
4. Workflow oriented	online planning & scheduling, inventory management, status monitoring, supply chain management.
5. Collaboration work environments	Distributed authoring systems, collaborative design tools.
6. Online communities / market place	Discussion groups, recommender system, e-malls, online auctions etc.

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Characteristics of Web Applications

1. Product Related / Present → how web appln is presented.
   → how users want to see the data.
   - Hypertext
   - Content

✓ Integral part of appln and consist of 3 divisions.

- Form
  - ✓ Presentation in form of graphs, audio, video gives better analysis.
  - ✓ Good look and feel of website inc. no. of hits. It plays a vital role in competitive market.
  - ✓ Attractive, impressive and acc. to latest fashion.

- **Hypertext :-** Base of a web site.
  - ✓ Link, Node, anchor
  - ✓ implements non-linearity
  - ✓ dec. cognitive load by dividing info in diff pages & hence dec. bulk.
  - ✓ Links make a website more interactive.

- **Content :-** informational part of web site.
  - ✓ generation, integration, availability and updation are imp. factors.

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✓ It contains - docs
table
text
graphic
multimedia

→ this should be of high quality, reliable, consistent, up-to-date

(2). USE RELATED

→ parameter changing with time.
→ depends on locality in which it is being used.

It consist of, ✓ natural content
✓ Social content
✓ Technical "

→ natural content :- data coming naturally i.e. which cannot be changed.
→ improves performance & efficiency.

→ Social content :- → users needs & spontaneous response
(user oriented) → scalability & multicultural ability are imp.
(i.e., diff people surf at diff time. with diff needs & purpose.

→ Technical :- People need devices to access internet & your website.

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- essential features that affect performance are:-
  - ✓ Bandwidth
  - ✓ Stability
  - ✓ Reliability

→ Browser configuration along with device configuration needs to kept in mind.

(3). Development Related

1. Development team
2. " process
3. Technical infrastructure
4. Integration

Development team

Dev. team should be highly knowledgable & skilled in that field.

→ Good Designers (to give pleasant feel to website)
→ " Database Developer
→ Good IT experts
→ Hyper text experts
→ Application "

se. & benefits.

✓ Team members should be knowledge freak, should be innovation & creative.

Development process

→ Flexible process should be there.
→ Quality product in less time.

Fountain Model | 9 Jan

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- Parallel processing should be there.
Eg. fountain model.
V-model.
i.e. Development, processing and testing runs in parallel.

Technical Infrastructure

→ Appln developed should be bug free.
⇒ Browser and Server → should be able to handle bulkiness of web pages.
↙
should be compatible enough to support desired web pages.

→ also, it should run in less time. i.e. fraction of seconds.

Integration

Web appln should have support for integration with existing system.

(4). EVOLUTION RELATED

Market evolution keeps on changing products with time. Therefore, it should be developed in short time.

Introduction to Web Engg.

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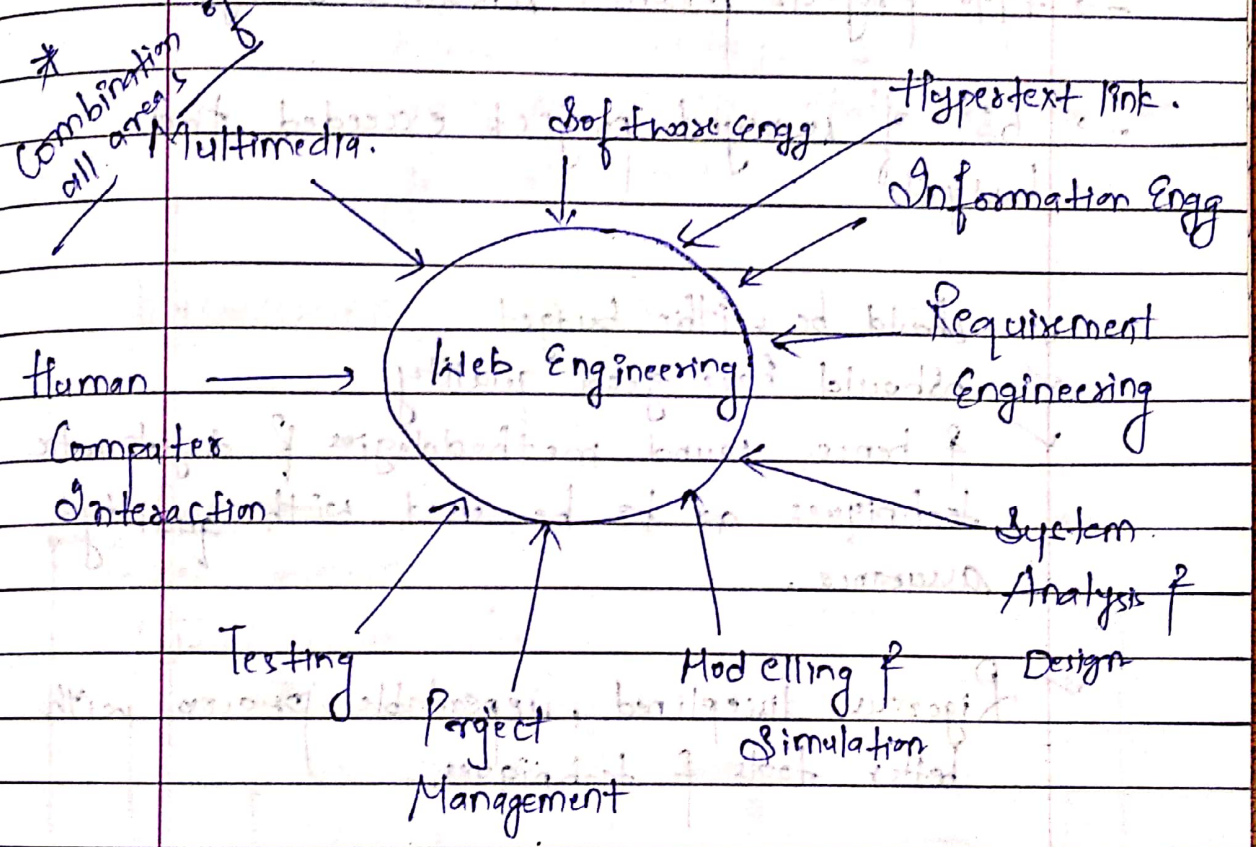
→ It is a process & systematic approach for a high quality web based systems establishment.
sound

→ It promotes use of scientific engg & management principles.

→ focuses on methodologies, technology & tools which lay foundation of web engg.

→ which focuses on development, design & evolution.



Evolution of Web Engineering.

→ Continuous Change ✓ : are subject to evolution due to constantly requirements changing & needs.
permanent
✓ appln created are temporary.

→ Competitive Pressure : Because needs are very high.
∴ Products have short life time. ∴ time invested on them is less. (ASAP)

→ Fast Pace
: Extreme time pressure is due to rapid time change

Web Framework

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Need of Web Engineering

→ 84% of surveyed delivered projects did not meet business needs.

→ 53% of surveyed delivered projects did not provide the required functionality.

→ 79% projects presented scheduled delays

→ 63% of surveyed projects exceeded their budget.

✓ should be within budget
✓ should have good quality
✓ & hence sound methodologies & systematic techniques are to be used with quality assurance.

✓ Rigorous, disciplined, repeatable process with better tools & techniques.

⇒ Web Engineering proposes an agile yet disciplined framework for building industry grade Web apps.

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Engg. must understand management demands near instantaneous, stakeholder demand rapid delivery. responsiveness

• Agile development :- each product should be developed in quick succession, should be quickly adaptible to the changes taking place.
→ Changes in team members.
Changes in technology.
Changes of all kind that may have an affect on proces.

FRAMEWORK → Activity
Action
Task

Web framework

Process framework

Umbrella Activities

Framework Activity 1
Web Engineering Activity 1.1

set of tasks

Work tasks
Work Products
Quality Assurance
Project Milestones

Web Engg activities 1.K

Set of tasks

Framework Activity n
Web Engg. action n.1
set of tasks

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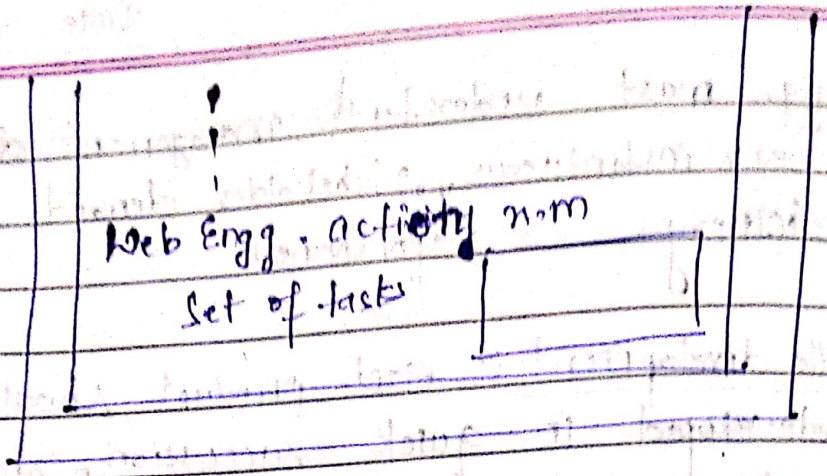

↳ Identifying a small no. of framework activities that are beneficial for web engg projects irregarding the size and complexities.

Activity
└ action
└ Tasks

ACTIVITIES :-
→ Communication
→ Planning
→ Modeling
→ Construction
→ Deployment

↳ A task accomplish some part of a work.

1. Comm^n : involves heavy interaction & collaboration with the customer & encompasses requ. gathering.

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- Planning:- It establishes an incremental plan for web engg actions, the technical task to be conducted, risk that are likely to happen, the resources that will be req, the work product to be produced. and a work schedule.

- Modeling:- Encompasses creation of model that assist the developer & customer to better understand the req. & design to encompass that req.

- Construction:- It combines both generation of HTML, XML, JAVA -- database., similar code with testing to uncover the errors in code.

- Deployment:- Delivers a web app increment to the customer to evaluate it based on the customer feedback.

Principles to follow as you adopt Web Framework

→ Emphasize on Project Agility and a set of agility principles.

* Principles 1. Primary imp. is to deliver soft. quickly & satisfy customers.

2. Deliver working software frequently: from a couple of week to couple of month with a preference to shorter time skill.

→ "Work Expand with the Time available."

3. Busines People and Worker should work together for long hours.

4. Build project around motivated individu. Give them environment & support their needs & given them trust of project completion.

5. The most effective mode of transfering info is face to face conversation.
(one to one)

6. Working soft is the primary measure of the progress.

7. Agile process promotes sustainable development

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8. Sponsors, developers and users should be continuously monitored & should be able to maintain a pace.
They should be able to perform task parallely.

9. Continuous attention to the technical designs, enhance agility.

10. Best architecture requirement & design emerge from self-organising team.

11. At regular intervals, the team reflects, how to become more effective, then tunes and adjusts its behaviour accordingly.

Why we need Engg ??

* Software Engineering provides technical hub.
These method consist of
Broad array of actions. →
a) tasks that include communication.
b) Requirement Analysis.
c) Design Modelling
d) Program Construction
e) Testing and Support.

Web Engg process can be categorised into following methods :-
1. Communication Methods
2. Requirement Analysis Methods

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3. Design Methods
4. Construction Methods
5. Testing Methods.

1). COMMUNICATION METHODS :-
   i) Group discussion
   ii) Brain storming
   iii) Interviewing
   iv) Peer.

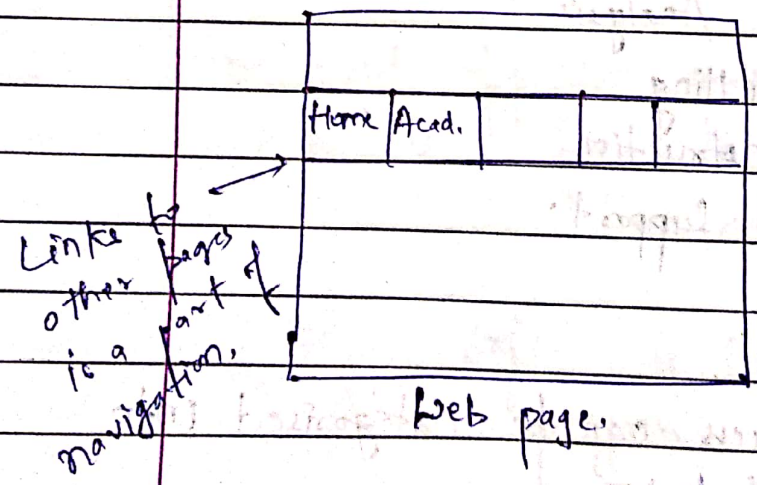
→ This is useful in gathering requirements.

2). REQU. ANALYSIS METHOD

✓ It provides basics for info to be delivered.

✓ Formal documentation is done and the it is signed by users, customers.

✓ Mode of interaction that each class of users will requ. at time of navigation.



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3). Design Methods

It holds the series of design technologies that address :-

→ web content
→ application
→ info architecture
→ interface design
→ navigation structure

4). Construction Methods

→ We apply set of tools and related technologies to the creation (language) of web pages.

5). Testing Methods

Incorporate technical reviews of both content & technical design model & a wide array of testing technique that addresses component level and architectural issues, navigation testing and usability testing, security and configuration technique.

Difference b/w software engg and web engg.

MM - (2) → give 5 points atleast
MM - (5) → give 15 and above points.

HTML (Tut)

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Simple HTML using :-

I). 1. order list
2. unorder list
3. definition list
4. heading element ✓
5. Text elements ✓
6. logical Styles

II). Hyper Links

III). Using Frames

IV). forms.

<! Doctype> → Defines the document type.

It is not a HTML tag. It tells about the version of HTML being used.

<head>
Under this,
<title>
<style>
<base>
<link>
<meta>
<script>
<noscript>

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The HTML <base> tag is used in defining the base URL for all the relative links in the HTML document

target :-
- _blank → opens in new window
- _parent → opens in parent window
- _self → open in self window

<link> → tag is used for importing external css file to the document.
→ It is mainly used in head part.

TEXT ELEMENTS → using it, text emphasize diffn meanings.

<b> → Bold text
 → important text
<i> → italic text
 → emphasized text
<mark> → marked txt
<small> → small text
<del> → Deleted text
<ins> → inserted
<sub> → subscript
<sup> → superscript

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LOGICAL STYLES

Definition List → <dl>

<dl> contains only a single pair <dt> <dd>

<dt> <dd>

<dd> defines a term

Hyperlinks

↳ anchor

↳ href.

 —

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REALITIES THAT ARE ENCOUNTERED IN MOST WEBAPP PROJECTS

(i) Requirement evolve over time

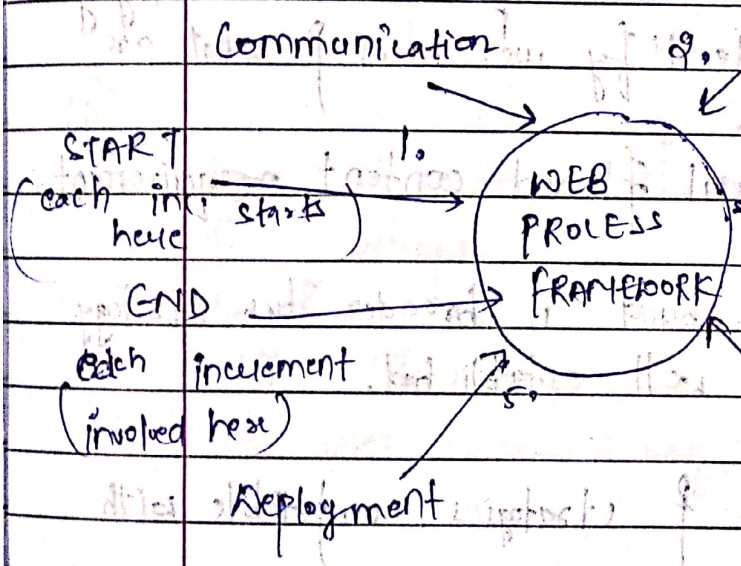
(ii) Changes will occur frequently

(iii) Timelines are short and leads to mitigation of volumous engg. documentation. Documentation must be provided in some form after each and every phase.

(iv) Because of these facts, webapps are delivered incrementally or in version. Framework activities are repeated again and again.

FRAME ACTIVITIES :-

A complete web app



* continuation (on next pages)

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⟹ How should the communication activity be refined?

1. Identify the business stakeholders
2. Identify user categories
3. formalate the busines context
4. Define key business goals and objectives for the web App.
5. Identify the problem
6. Define informational and application goals
7. Gather Requirements
8. Develop usage scenarios.

(1) → to find out who is exactly the customers for oron web appln.

(2) ⟹ Identify user categories
- ✓ what is the bkd of each user category
- ✓ who will identify user need & what are those needs.
- ✓ what special fn and content requirement.

(3) → how web app build in broader bus strategy. Are strategies well established.

(4) → are all goals & strategies compatible with each other.

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(5)

- What info is put as an I/P by an end user.
- What stored info does the web appl^n use.

(6). Informational and application.

- What is the status of the content
- How dynamic is the content
- How often it changes.
- How stable are the requ. info

(7). Gather Requ.

- What user task will be support by webapp.
- Computational task to be provided.
- navigation schema desired.
- What content is to be developed.
- What special performance is requ.

(8).

- have all categories of users who will interact with the webapp.
- are the usage scenarios complete & consistent with the requ.!
- Do user scenarios req. further documentation.

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How Should Communication Activity Be Refined?

(1) ⇒ to find out who is exactly the customer for own web app.
- ✓ Who will serve as active member of team.
- ✓ What is degree of consensus.
- ✓ Who to identify user categories that will interact with app.

(2) ⇒ Background of each user category
- ✓ Who will identify special needs for each category.
- ✓ What special content & fn requirement by each user category.

(3) ⇒ How web app build in broader user strategy
- ✓ What are multiple objectives, what are there priorities and do diff. stakeholders have diff. goals and objectives.
- ✓ All goals and objective are consistent.

(4) ⇒ ✓ What info is produced & i/p given by the user.
- ✓ function req. to manipulate data.
- ✓ What stored info web app uses.

(5) ⇒ ✓ What classes of content to be provided to end users & what is status of content.

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- How dynamic is content
- How often it changes.
- What fn and user tasks are to be accomplished.
- How stable are Req. functions.

(6) ⇒ What user tasks will be supported by the web app increment.
- What content is to be developed.
- What comp fn would be provided by web app.
- What constraint exist for increment
- What special performance Requ. must be considered.

(7) ⇒ Have all categories of users who will interact with webapp considered.
- Are use case scenarios complete & consistent with the increment req.
- Do user scenarios req. further documentation.

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What tasks are req. to develope increment Plan?

1. Refine your description of the WebApp increments to be delivered now.
2. Select the webapp Inc to be delivered now.
3. Estimat the effort and time req. to deploy the Inc.
4. Assess risks associated with the delivery of the Inc.
5. Define the development scheduled for the Inc.
6. Established work product to be produced as a consequence of each framework activity
7. Define your approach to change control.
8. Establish your quality assurance approach.

(1) → Do request changes ~~it~~
- ✓ if modifications are req, what changes are req. in functionality
- ✓ how much effort need to be expanded on each inc.
- ✓ how much time " " " " "
- ✓ what is the estimated date of each inc.

(2) → ✓ Is their enough info to begin inc
Do you have a clear understanding of the increment to be delivered.

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✓ are usage scenarios are complete.

3) ✓ Estimate the effort & time Requ. to deploy the Requirement increament.

✓ Calculate person effort in day & calendar time

✓ What Resources will be Requ.

✓ SS - risk analysis.

4) ⇒ ✓ What risk should be addressed during each inc.

✓ How will high probability & high i/p risk to be integrated.

✓ What long range risk must be considered.

5) ⇒ ✓ Define the development scheduled for the Inc.

✓ What intermediate milestone will be established.

6) ⇒ ✓ What are written scenarios.
→ Sketches
→ Models
→ Document

7) ⇒ ✓ How to control any changes in middle of the development.
✓ Define your approach to do that.

8) ⇒ ✓ How will the team assess the quality of model, constructed deployed
✓ What if any matrix will be used.
✓ " " " reviews will be conducted.

** continuation

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* from start to end, we get increment.
1. for any changes suggested by users, we perform next increment.

Activity

(I) COMMUNICATION — Task

→ formulation :- ✓ It defines buiness and organisation content for webapps.
✓ diff^n web app have diff^n formulation
✓ Stakeholders are identified and potential changes in business environment and requirement are predicted.
✓ Integration with other apps, database and business apps are defined.

action

→ Negotiation

→ Elicitation

(II) PLANNING
→ Estimation
→ Risk Analysis
→ Scheduling
→ Monitoring
Task definition
: Task defination and time line is given.

(III) MODELING
→ Analysis
→ Design

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✓ Conventional software engg process is used to create web-app.
✓ Intension is to develop agile analysis and design model DFD, ER, structured english.

(IV) CONSTRUCTION :- Web app tools and technology
↳ Coding is applied to create web
↳ Testing app. A series of rapid test is conducted.

(V) DEPLOYMENT
↳ Delivery
↳ Evaluation

:- Web app is configured for its operational environment to end user, and evaluation period commences. Feedback is presented to web engg team and next increment starts.

COMMUNICATION

✓ Elicitation :- It is requirement gathering activity involving all stakeholder. Intention is to describe problems solved by web-app and an attempt is made to identify areas of uncertainity and areas of change.

✓ Negotiation :- It is an agreement b/w diff parties. It is required to solve diffferences b/w various stakeholders for the project. Different party have diff^{n} requirements and conditions.

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PLANNING

Estimation

- Identify no of increment
- Prepare project plan for next web app increment
- identify resources requirement

Risk Analysis

Analyse any type of risk involved in web-app

Scheduling

- Schedule the tasks prepared
- A proper sheet / schedule is prepared for each task along with timeline / dead line
- Project tracking and monitoring commences here.
- Categories task based on priority

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WHAT ANALYSIS MODELLING TASK CAN BE APPLIED

(1) Decide whether a requ. model is needed

TASKS

(2) Represent webapp content
(3) Identify content relationships
(4) Refine and extend user scenarios
(5) Review usage scenarios
(6) Create an interaction model for complex scenarios
(7) Refine interface requ.
(8) Identify functions
(9) Define constraints and performance requ.
(10) Identify database requ.

MODELLING :- is conceptual representation of a webapp to be build.

ANALYSIS :- examines info gathered during comm° activity during starting like stakeholder info.

When requ. gathered for complex, it is advised to refine them by analysis modelling.

(i) Does existing info provided sufficient detail about → 1. webapp content
2. requ. modes of interaction
3. requ. functionality
4. technical configuration issues.

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If yes, then no need of analysis model. have usage scenarios developed in sufficient detail? Is this info exist and complete, there is no need of analysis model.

(ii) What content is to be presented. What is its origin, who is responsible for developing this content? Is it advisable to arrange content in diff classes? are relation b/w classes complex? which classes are static?

(iii) How is one class of content related to other? What is form and style of each class.

(iv) What user tasks are performed as part of the increment? How user perform task? What info is needed to perform task? What steps requ. and how user interact with web app?

(v) Are there inconsistencies or omission in scenario?

- Is each scenario detailed enough?
- Does scenario detailed enough?
- Does scenario confirm to content and fn to be implemented?

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(vi) ✓ If sequence of actions in scenario is complex, what is isolation b/w user task and content that is required for each task?
✓ What externally observable states are identified?
✓ What user task cause transition from one stage to another?

(vii) ✓ Does look and feel accomodate user scenarios.
✓ Are modifications req. for menu layout and navigation?

(viii) Identify functions :- What functions web app perform for user?
✓ What data will user provide to invoke functions?
✓ Is algo implied by each fn will understood?

(ix) How constraints and performance req. presented in correct form?
✓ What privacy policies are required to be implemented?

(x) ✓ What databases will be accessed?
✓ Is interface protocol well defined?
✓ What content classes are involved?

What are the elements of a Design Model?

Designing
↓
Core Engineering Activity

- (i) Interface design
- (ii) Aesthetic "
- (iii) Content "
- (iv) Navigation "
- (v) Architecture "
- (vi) Component "

→ Types of Design

✓ Designing bridges gap b/w normal people & technology.

✓ Goal is to produce a model or representation that exhibit firmness commodity, and delite.

✓ Design model of required with every increment. It may be same.

(I) Describe structure and organisation of user interface. It includes layouts of web-app, modes of interaction and navigation mechanism.

(II) Graphical Design. Decide look and feel. Includes geometric layout, colour, font, placement, text size.

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(III) Define layouts, structure, outline for all content that is to be presented as part of web-app.

(IV) Represent navigational flow among content objects and for all web-app functions. Linkage of all web-pages.

(V) Identify overall hypermedia structure for web appln.

(VI) Develop detailed processing logic required to implement functional components that implements web app fn.

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What design modelling task can be applied

→ Design the interface
→ " " aesthetic for the webapp
→ " " navigation scheme
→ " " webapp architecture
→ " " content and the structure that support it
→ Design functional components
→ Select appropriate design pattern.
→ Design appropriate privacy & security mechanism
→ Review the design.

(1). 1. How are interface task & subtasks to be presented in the interface.
2. What is control mechanism
3. How are control mechanism positim on webpage.
4. Does design accomodate every user scenario

(2). 1. How will the page layout be implemented.
2. Does color & font depend on content.
3. How navigation represented.
4. Are all logos, graphics, images are implemented & available.
5. Is the aesthetic design consistent.

(3). 1. What are navigation links & nodes are req.
2. How navigation convention & aids are to be used.

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3. Is the overall navigation flow defined.
4. Do navigation correspond to the interface mechanism design.
5. Has it been optimized for diff^n user categories.
6. Do, navigation semantics agree with the each user scenario.

(4). What architecture design/ styles will be used for content & layout.

(5). 1. What content must be designed as a part of webapp^n increment.
2. What large database & datastructure are requ. to implement functionality & persent data.
3. Are interfaces to existing databases are defined at desired level.

(6). 1. Have all the algos been defined.
2. Is appropriate content is available when processing is req.

(7). 1. Architectural pattern eg. (MVC, (diff^n versions) that are appropriate (Model View Control)
2. Can interaction pattern be used in interface.
3. Can navigation design pattern use existing pattern.
4. Can work flow behaviour, processing can be achieved by functional patterns.

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(8) 1. What level of security is requ. for the system.
2. What level of security & privacy is requ. for client side & server side.
3. Content from unauthorised access.

(9). 1. Does the design confirm to customer requ.
2. Can the design be implemented acc. to the increment deployment schedule.

CONSTRUCTION :-
↳ Code Generation
↳ Testing

⇒ Various subtasks under Code Generation

1. Build & acquire all content & integrate the content into the web appln architecture.
2. Select appropriate tool set for the generation of HTML code.
3. Implement each page layout function, form and navigation capability
4. Implement all computation functionality.
5. Address configuration issue.

(1). → What web engg tools & techniques to be applied.
→ What existing forms & templates & patterns can be used during construction.

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(2). → Select the appropriate tool sets for html code

AJAX tool kit

(Asynchronous Java Axis X Controller.)

→ Using this only specific parts are loaded or refreshed instead of whole page. Thus save loading time.

→ Can the tool set be used exclusively, if must the specialized capabilities by hardcoded.

(3). → Is all content available for integration into each webpage for the increment

→ Have links to all form being implemented

→ What linking fn mechanism activated.

(4). → Implement all computation

→ Database interface, forms & scripts to be used? or implemented.

→ There are diff connection strings for linking frontend to database. (connectionstring.com)

→ Have computational algos been adequately designed.

→ Are functionalities deployed on client side or server sides.

(5). → What browsers, plug ins, & environments to be supported on client & server side.

(Plugins → readymade softwares.)

Prior to Communication Activities

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PLAN THE TESTING ACTION:
→ Test all webapp components (content & function)
→ Test Navigation
→ Test Usability
→ Test Security and Performance
→ Test the webapp increment for diff. configuration.

Deployment

How a webapp increment is Deployed?
→ Deliver the webapp increment a server a/q predefined domains.
→ Established the online feedback mechanism for end users.
→ Evaluate end user interaction.
→ Asses lessons learned & consider all end user feedback.
→ Make modifications to the WebApp increment as required.

Planning Activity

(1): What components are to be tested in the context of the user tasks.
→ Have test been designed to fully exercise the functionality.

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(2). ✓ What link are to be used?
✓ " " " " " test?
✓ To what user scenarios are appln to appropriate the test?
✓ How test has been designed to fully exercise the navigational structure. (Manual testing can be used.)

(3). ✓ What interactive mechanism must be tested for ease of usability.
✓ What user scenarios are applicable to appropriate the development test.
✓ Have test been designed to ensure each user scenario has been supported.

(4). ✓ Have we applied appropriate validation?
✓ How do we exercise all the security filters.
✓ Test overall performance.
✓ Test Query time.
✓ Have test been designed to ensure security on both client & server side.

(5). ✓ Has list of all configurations been developed.
✓ Has the test been designed to exercise web appln increment in all operational environment.

Date : / /

Deployment Points :-

(1). ✓ Have all the files & directory naming & link reference & convention has been followed.
✓ Have the users been provided with excess information
✓ Are appropriate security elements for eg. password check, in place in operation.
✓ Link reference convention is to be used.
✓ Have users been provided access to info.
↳ We can create a ref doc & upload it in directory structure.

(2). ✓ We can create a form in parametric way to get user feedback.
✓ Has the online feedback form been implemented.
✓ Is it subjective or objective?
✓ Is it possible to evaluate feeback form quantitatively.

(3). ✓ How does the user interact with the system.
✓ Where the problems have been encountered. (Problem areas).
✓ What parts of interaction are unclear or missing acc. to user feedback.
✓ What content or functionality is incorrect or missing.

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(4). What changes are req. based on user feedback.
- Should the changes be made immediately or need to be implemented in next increment model.

(5). What modifications must be made to increment.

UMBRELLA ACTIVITIES

1 → Change Management
2 → Quality Assurance
3 → Risk Management
4 → Project Management

→ Most crucial out of all.

→ A collection of umbrella activities always runs in background.
→ These are equally imp.

(1). manage the effect of each increment, integrating tools that assist in the management of all web appln content as the Design

(2). Define & conduct those task that has ensure that each work product of the deployed increment, quality. good.

(3). Consider project & technical risk as an increment is engineered.

Date : / /

(4). Tracking & monitoring progress at an increment is engg.