Current Trends in Web Engineering Notes Self Prepared

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Current Trends in Web Engineering - Summer 2010 / 2011

1. What is Scrum?

Scrum is a framework for managing work with an emphasis on software development. It is designed for teams of three to nine people who break their work into actions that can be completed within time boxed iterations, called sprints (typically two-weeks to one month) and track progress and re-plan in 15-minute stand-up meetings, called daily scrums.

[OR]

Scrum is an agile process that allows us to focus on delivering the highest business value in the shortest time. It allows us to rapidly and repeatedly inspect actual working software (every two weeks to one month).

It emphasizes accountability, teamwork, and iterative progress toward a well-defined goal.

The Scrum Framework usually deals with the fact that the requirements are likely to change or most of the time not known at the start of the project.

2. What are self-organizing Teams [context scrum]?

Teams self-organize to determine the best way to deliver the highest priority features. Some important ingredients of a self-organizing team:

- They pull work for themselves and don't wait for their leader to assign work.
- They manage their work (allocation, reallocation, estimation, Re-estimation, delivery, and rework) as a group.
- They still require mentoring and coaching, but they don't require "command and control."
- They understand requirements and aren't afraid to ask questions to get their doubts clarified

3. What is Scrum all about?

Business value

4. Paint the product burn down chart

A **burn down chart** is a graphical representation of work left to do versus time. The outstanding work (or backlog) is often on the vertical axis, with time along the horizontal axis.

5. What is Velocity [context scrum]?

In general, the velocity indicates how many tasks a team does per sprint can be processed.

Current Trends in Web Engineering - Summer 2013

Task 1: Scrum Basics

1a) Peter works in a company employing Scrum. He represents the customer and grooms the product backlog. What is Peter's role in the Scrum Process?

Answer: Product Owner

1b) Paul is a Scrum Master. At the beginning of each sprint, he assigns tasks to the team members according to their experience. Provide reasons why this is contrary to Scrum.

Answer: Because in Scrum individual sign up for work of their own choosing. Work is never assigned in Scrum.

1c) Explain the INVEST characteristics of good Scrum stories.

Independent: Backlog item should be self-contained in a way that there is no in sprint dependency on another backlog item**.**

Negotiable: Product Backlogs are not explicit contracts and should leave space for discussion.

Valuable: A story needs to be valuable. We don’t care about value to just anybody; It needs to be valuable to the customer.

Estimable: You must always be able to estimate the size of a Product Backlog.

Short or Small: The backlog item should not take the team more than half a sprint to complete. PBIs should not be so big as to become impossible to plan/task/prioritize with a certain level of accuracy.

Testable: The PBI or its related description must provide the necessary information to make test development possible.

1d) On a Scrum Dashboard at the end of a Sprint, about half of the Tasks are still in the To Do column. This happens at an early stage of the project (just a couple of sprints so far). What went wrong (min. 2 reasons, among this min. 1 reason idiosyncratic for Scrum)?

Answer: Wrong Estimation, Team member sick

- Team is unclear with the idea about the tasks.
- No priority set for the tasks which are more complex

How can this be improved in the subsequent Sprints?

Answer: Correctly Estimate the work load (Story Point), we need somehow manage backup resource, improve the efficiency of resource.

- Each member should be clear about the task to do
- A goal should be set for each task
- If work is unclear, define a sprint backlog item with a larger amount of time and break it down later

Task 2: Applying Scrum: Consider the following chart (Figure 1) showing the performance of a Scrum team during the first 6 Sprints of a project.

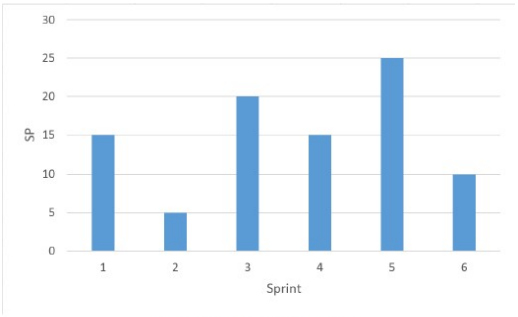


Figure 1 - Scrum sprints overview.

2a) what is the velocity of this team? Indicate the calculation process of your result.

Answer: (15 + 5 + 20 + 15 + 25 + 10) / 6 = 15 on average they are done with 15 story points per Sprint.

2b) How many Story Points are likely to be achieved by this team in Sprint 7?

Answer: (15 + 5 + 20 + 15 + 25 + 10+X) / 7 = 15 Based on velocity calculation we can conclude that in sprint 7 we can likely reach to 15 story points

2c) The following table represents the Sprint Backlog. For each story, the estimated Story Points are listed. Which stories would you select for sprint 7? Provide a reason for your answer.

Story Id	S1	S2	S3	S4	S5	S6	S7	S8	S9
SP	3	1	3	5	8	3	1	1	5

Answer: As we calculated the velocity and saw we can likely reach to 15 story points for our next sprint we will not go beyond 15 story points, and we will take S1, S2, S3, S4 (priority is important in scrum) which is 12 story points for our sprint 7.

2d) Draw a burn down chart for this Scrum project using the data provided in the above chart and table. What can be inferred from this burn down chart?

We can know how much work left after each sprint.

(15 + 5 + 20 + 15 + 25 + 10) + 30 = 120

Sp1= 120-15 = 105

Sp2= 105-5 = 100

Sp3= 100-20 = 80

Sp4= 80-15 = 65

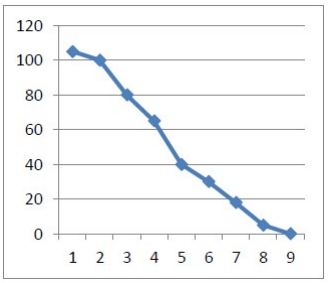
Sp5= 65-25 = 40

Sp6= 40-10 = 30

Sp7= 30-12 = 18

Sp8= 18-13 = 5

Sp9= 5-5=0



2e) Based on the above data, how many sprints are required to finish the project?

Answer: 9 Sprints

Current Trends in Web Engineering – Winter 2014/2015

TASK 1: Scrum Basics

1a) Peter works in a company employing Scrum. He represents the interests of the customer. E.g. he updates the priorities of the elements of the product backlog. What is Peter's role in the Scrum Process?

Answer: Product Owner (Since he prioritizes features according to market value)

1b) Paul is a Scrum Master. At the beginning of each sprint, he estimates the effort for all tasks according to his many years of experience. Provide reasons why this is contrary to Scrum.

Answer: Because in Scrum every team member should give his or her estimation for a task and it should not be done by only Scrum Master.

1c) On a Scrum Dashboard at the end of a Sprint, about half of the Tasks are still in the To Do column. This happens at an early stage of the project (just a couple of sprints so far). What went wrong (min. 2 reasons, among this min. 1 reason idiosyncratic for Scrum)?

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- Each member should be clear about the task to do
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1d) Estimation is an important part of scrum. Briefly explain 3 problems regarding estimation. Why should you use nonlinear scales?

3 Problems in estimation: Complexity, Scrum has no method for measuring accuracy, Not following scrum standards.
Non Linear scales: Team over estimated small user stories and sub estimated large user stories, thus velocity changes.
Answer: Because if we go for linear scales for example 1, 2, 3, 4… scales we will have problem in differentiation of which estimation we should accept because the values are close to each other and we don't have big difference for example in choosing estimation of 7 or 8.

Task 2: Applying Scrum

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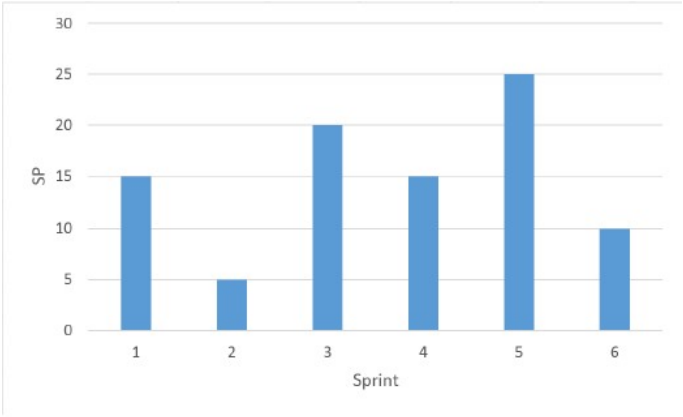

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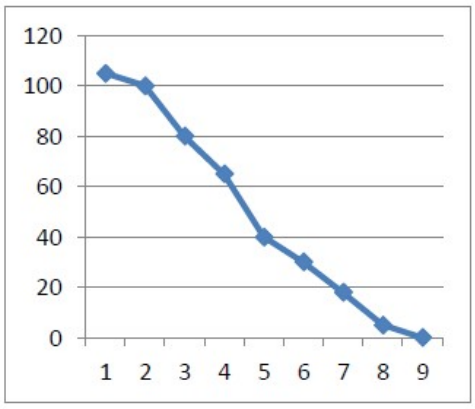


2e) Based on the above data, how many sprints are required to finish the project?

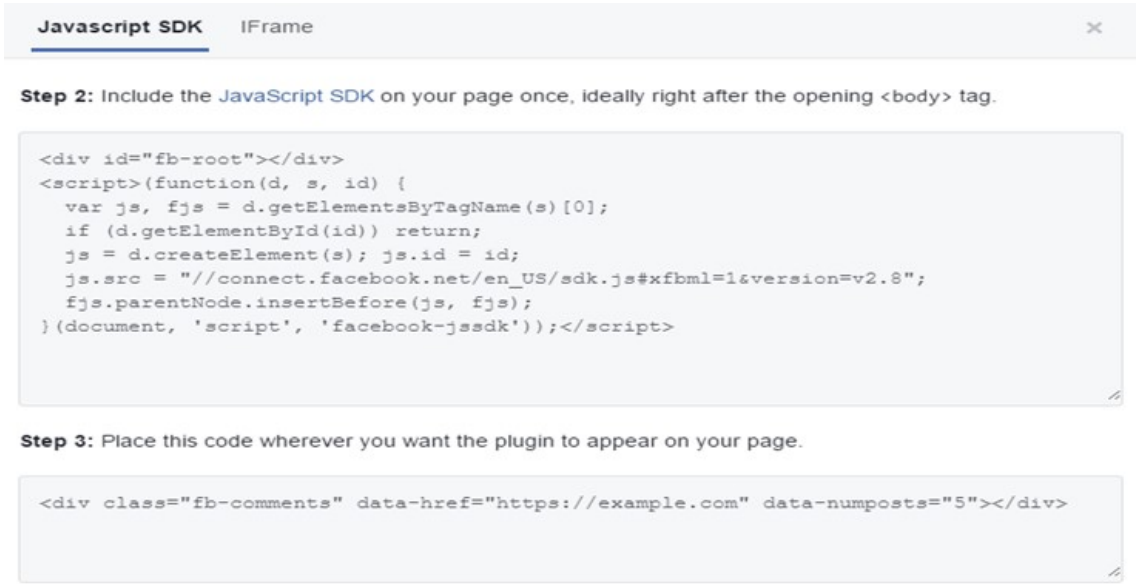
Answer: 9 Sprints

Task 3: Social Web

3a) The success of the Social Web is partly driven by the ease of integration for Social Network Features into one's own applications. Describe the basic process of integrating Javascript Services into your own web application for an example such as a FB like button, Google+ +1 button, Twitter share buttons etc.

Answer: As we know facebook, google+, twitter provide some API (JavaScript SDK) for integrating like, share, comment options in third party websites. for JavaScript SDK, the process would be including the JavaScript SDK on our page body tag and it will work.

For example:



3b) Write down the corresponding part of the activity stream for the following example: User Peter Kilometre (http://example.org/peter) posts a blog entry:

(http://example.org/blog/2014/08/entry) on his blog (http://example.org/blog/) today (20140806T14: 00:00Z).

Answer:

```
{
"@context": "https://www.w3.org/ns/activitystreams",
"summary": " Peter Kilometer posts a blog entry",
"type": "Add",
"published": "20140806T14: 00:00Z ",
"actor": {
"type": "Person",
"id": " http://example.org/peter ",
"name": " Peter Kilometer ",
},
"object": {
"type": "Post",
"url": " http://example.org/blog/2014/08/entry ",
"name": ""
},
"target": {
"id": "http://example.org/blog/",
"type": "blog post",
"name": " Peter Kilometer 's Blog"
}
}
```

3c) Explain shortly the way how OpenGraph works.

Answer: To turn your web pages into graph objects, you need to add basic metadata to your page. We've based the initial version of the protocol on RDFa which means that you'll place additional <meta> tags in the <head> of your web page. The four required properties for every page are:

- **og:title** - The title of your object as it should appear within the graph, e.g., "The Rock".
- **og:type** - The type of your object, e.g., "video.movie". Depending on the type you specify, other properties may also be required.
- **og:image** - An image URL which should represent your object within the graph.
- **og:url** - The canonical URL of your object that will be used as its permanent ID in the graph, e.g., "http://www.imdb.com/title/tt0117500/".

Describe how one can add a web page to OpenGraph assigning the title "Books" and thumbnail "http://books.example.org/title.png" to it. Write down the required source code.

Answer:

<meta property="og:title" content="Books" />
<meta property="og:image" content="http://books.example.org/title.png" />

Task 4: Authentication and Authorization

4a) Name Four vocabularies used in a Web ID profile. For two of them, describe what they are used for in the Web ID profile.

Answer:

1. FOAF: Personal details are the most common requirement when registering an account with a website. Some of these pieces of information include an e-mail address, a name and perhaps an avatar image expressed using the FOAF Vocabulary.

- foaf:mbox
  The e-mail address that is associated with the WebID URI.
- foaf:name
  The Name that is most commonly used to refer to the individual or agent.
- foaf:depiction
  An image representation of the individual or agent.
- Foaf:konws
  The WebID URI of a known person
- foaf:img
  An Image representing a person.

Cryptographic details: are important when Verification Agents and Identification Agents interact.

The following properties should be used when conveying cryptographic information in WebID Profile documents:

2. RSA: RSAPublicKey: Expresses an RSA public key. The RSAPublicKey must specify the rsa:modulus and rsa:public_exponent properties.

3. CERT: identity: Used to associate an RSAPublicKey with a WebID URI. A WebID Profile must contain at least one RSAPublicKey that is associated with the corresponding WebID URI.

4b) WebID authentication does not require CAs to work. How is the proof of identity, given by the WebID URI, provided?
Answer: WebID URI uses WebID-TLS and client side certificate for identification and authentication.

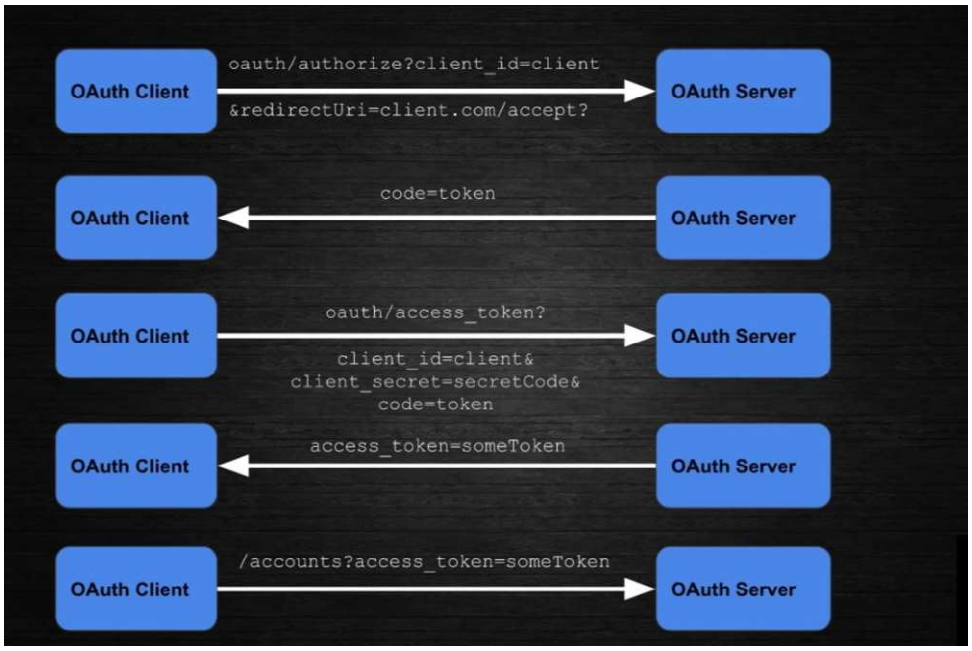
More to know: A WebID (Web Identity and Discovery) is a way to uniquely identify a person, company, organisation, or other agent using a URI. Having a WebID can allow you to identify yourself when you publish this sort of information online and link to each of those resources.

To authenticate a user requesting an access-controlled resource over HTTPS, the "verifying agent" controlling the resource needs to request an X.509 certificate from the client. Inside this certificate, in addition to the public key there is a "Subject Alternative Name" field which contains a URI identifying the user (the "WebID"). Using standard TLS mutual-authentication, the user agent confirms they know the private key matching the public key in the certificate. A single HTTPS cacheable lookup on the WebID should retrieve a profile. If the semantics of the profile specifies that the user named by that URI is whoever knows the private key of the public-key sent in the X.509 certificate this will confirm that the user is indeed named by the WebID, allowing the authenticating agent to make an access control decision based on the position of the WebID in a web of trust.

4c) What is the goal of OAuth?
Answer: OAuth: is an open standard for access delegation, commonly used as a way for Internet users to grant websites or applications access to their information on other websites but without giving them the passwords.

This mechanism is used by companies such as Amazon, Google, Facebook, Microsoft and Twitter to permit the users to share information about their accounts with third party applications or websites.

Describe how one can realize user authentication using OAuth enabled social networks (e.g., Twitter or Facebook). How data gets from a social network to the own application?
Answer: Generally, OAuth provides to clients a "secure delegated access" to server resources on behalf of a resource owner. It specifies a process for resource owners to authorize third-party access to their server resources without sharing their credentials. Designed specifically to work with Hypertext Transfer Protocol (HTTP), OAuth essentially allows access tokens to be issued to third-party clients by an authorization server, with the approval of the resource owner. The third party then uses the access token to access the protected resources hosted by the resource server.



How the user is authenticated in case of future registration requests?

Answer: The user doesn't need to register again. For log in he can use his facebook or google authentication which is used previously for registration.

4d) what is the difference between authentication and authorization?

Answer:

Authentication	Authorization
It is the process of verifying the identity of a user	It is the process of checking whether the user has the access rights to the system
It always proceeds to authorization	It is the process of allowing an authenticated user access to resources.
It has two separate levels because all the requests coming through the IIS before it is handled	It allows two ways to authorize the access t a given resource
They have additional schemes like windows authentication, forms authentication and passport authentication.	The two ways are URL authorization and File authorization.

Authentication is the process of ascertaining that somebody really is who he claims to be.
Authorization refers to rules that determine who is allowed to do what.
E.g. Adam may be authorized to create and delete databases, while Usama is only authorized to read.

Task 5: Design Thinking

5a) HCD consists of 3 phases. Briefly describe for each phase, what its purpose is and how subsequent phases build on results of proceeding ones.

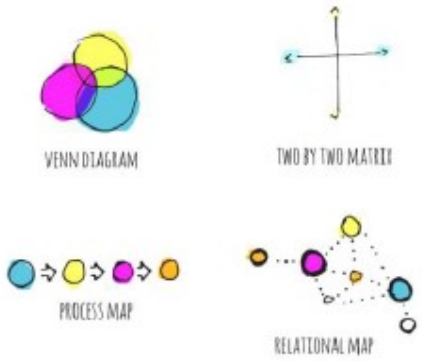
Answer: The HCD process goes through three main phases:

- **Hear:** Collect stories and inspiration from the people you are designing for (ethnographic research: observation, interviews, etc.). Determine who to talk to, how to gather stories, and how to document your observations.

- **Create:** Work to translate what you heard from the people into the reality of today. This includes moving from concrete to more abstract thinking in identifying themes and opportunities, then back to the concrete with solutions and prototypes.
- **Deliver:** Begin to realize your solutions by taking your top solutions, making them better, and move them towards implementation by, revenue and cost modelling, capability assessment and implementation planning.

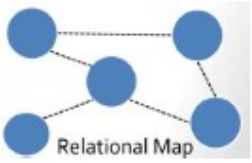
5b) Why do you use frameworks for in HCD?

Answer: It is in phase Create in HCD process. Framework is a visual representation of a system, and a great way to make sense of data. Use them to highlight key relationships and develop your strategy. Create Frameworks will help you organize your ideas and more importantly, explain them to others. Frameworks are only meant to help you visualize your system, not to capture it perfectly the first time out.



5c) What do you use a relational map for in HCD?

Answer: it shows the relation between the objects. For Example : The interviewed experts for our bio simulation software state the following: Plants have roots and flowers. Roots absorb water and minerals. Flowers produce seeds. Water, minerals and seeds are found in soil.



5d) Visualize the following 2 matters by means of appropriate techniques from HCD.

1. The approaches differ in two properties: usability and costs. Poor solutions have low usability and high costs. Average solutions will be good in only one property. Perfect solutions have low costs and nevertheless high usability.

Answer: Tow-by-two Matrix framework

2. The user input is first checked for validity, then our poll system processes them and incorporates them into the statistic and finally they are handed over to the raffle component which archives them for the determination of the winners later on.

Answer: Process Map framework

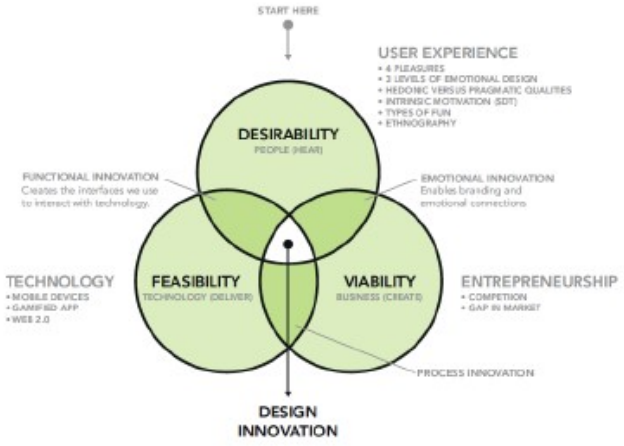
Current Trends In Web Engineering SS17 - Repeat Exam

1. Scrum

2. Scrum applied (Velocity, Story picking for next sprint, Burndown Chart)

3. Design Thinking: 3.1 Describe the three Lenses of HCD.

- **Desirability (people): What do people want, need, and desire?**
- **Feasibility (technology): What is technically feasible?**
- **Viability (business): What is financially viable?**



3.2 Given a private hospital, which fulfils all three lenses? Name how each lenses is fulfilled in this case.

- Desirability: To build a private hospital.
- Technical: All facilities that we need in hospital.
- Business: Once patients get treated they will have to pay for it so we will get benefit from it.

4. Digital Identity: Write activity stream for Blog entry.

```
{
"@context": "https://www.w3.org/ns/activitystreams",
"summary": " Peter Kilometer posts a blog entry",
"type": "Add",
"published": "20140806T14: 00:00Z ",
"actor": {
```

```
"type": "Person",
"id": " http://example.org/peter ",
"name": " Peter Kilometer ",
},
"object" : {
"type": "post",
"url": " http://example.org/blog/2014/08/entry ",
"name": ""
},
"target" : {
"id": "http://example.org/blog/",
"type": "blog post",
"name": " Peter Kilometer 's Blog"
}
}
```

5. Social Web

Describe how a Facebook Batch Request works.

Batching allows you to pass instructions for several operations in a single HTTP request. You can also specify dependencies between related operations. Facebook will process each of your independent operations in parallel and will process your dependent operations sequentially. Once all operations have been completed, a consolidated response will be passed back to you and the HTTP connection will be closed.

How can you run such a Batch Request?

To make batched requests, you build a JSON object which describes each individual operation you'd like to perform and POST this to the Graph API endpoint at https://graph.facebook.com. The following example gets the current user's profile information and the first 50 friends from their friends list in a single request:

```
curl \

-F 'access_token=...' \
-F 'batch=[{"method":"GET", "relative_url":"me"},{"method":"GET",
"relative_url":"me/friends?limit=50"}]' \

https://graph.facebook.com
```

Write output of the given batch request (given is a curl command).

Once both operations have been completed, Facebook sends a response which encapsulates the result of all the operations. For each operation, the response includes a status code, header information, and the body. These are equivalent to the response you could expect from each operation if performed as raw requests against the Graph API. The body field contains a string encoded JSON object:

For the above request, the expected response would be of the form:

```
[
{ "code": 200,
"headers":[
```

```
{ "name": "Content-Type",
"value": "text/javascript; charset=UTF-8" }
],
"body": "{\"id\":\"...\"}"},
{ "code": 200,
"headers":[
{ "name":"Content-Type",
"value":"text/javascript; charset=UTF-8"}
],
"body":"{\"data\": [{...}]}}
]
```

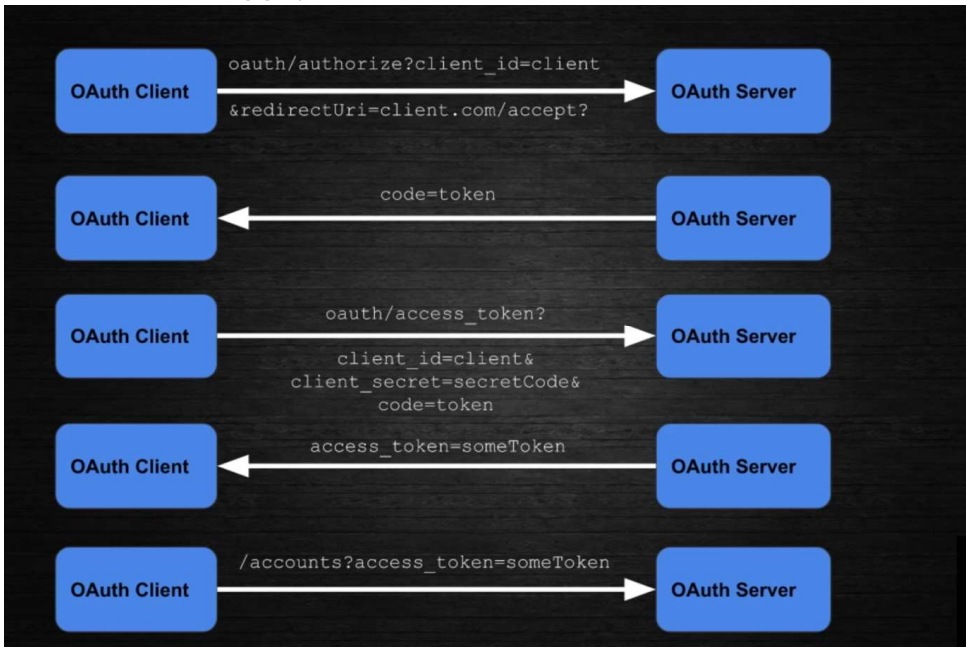

What is an access token?

Answer: In computer systems, an access token contain the security credentials for a login session and identify the user, the user's groups, the user's privileges, and, in some cases, a particular application.

How and where can you get one?

For example, when we are a third-party application and someone wants to sign in to our application using his or her Facebook account we will ask for an access token from Facebook and if user allow us then we will get an access token from Facebook which by using this access token we will have access to the user's information in Facebook. (we don't have access to user's password).

To get an access token there are some other process such as third-party authentication which is shown in the following graph:



6. Alignment Diagram

Create an Alignment diagram (table form) from a given description of a hotel reservation system.

Name some Backlog Items for future enhancements.

Current Trends in Web Engineering – Summer 2017

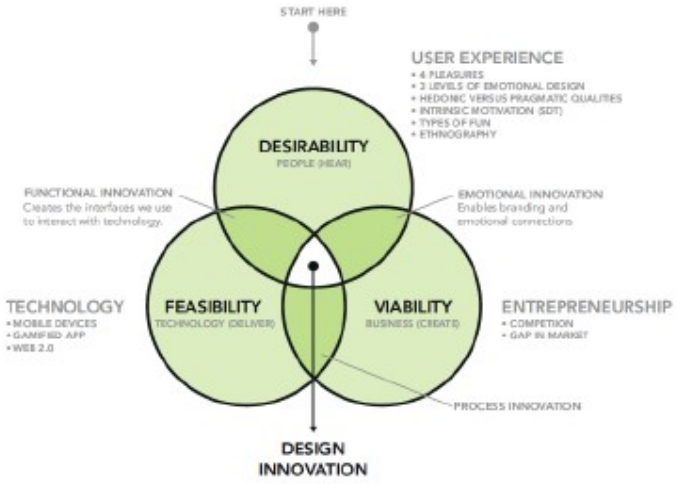
TASK 01: HCD

1. Use one sentence to describe HCD phase.

Answer: HCD is a process and a set of techniques used to create innovations. It starts with the people we are designing for, and examines their needs, dreams and behaviours through the "desirability lense". We seek to listen to and to understand what they want. Once we have identified what is desirable, we then view our solutions through the lenses of "feasibility" and "viability".

2. Introduce three lenses of HCD.

- Desirability (people): What do people want, need, and desire?
- Feasibility (technology): What is technically feasible?
- Viability (business): What is financially viable?



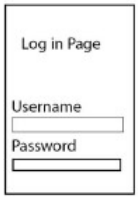
3. Describe the consequence of no fulfill lenses.

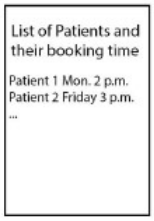
If desirability is not fulfilled: we don't know about the people weather our product would be useful for them or not. If we don't know about technical part of HCD we don't have information about how to build the product. If we don't have the business part of HCD we will not have information about business and how to get benefit from our product and we might go in loss.

3. A doctor has problem with arrangement. Patients do not follow the rule of appointment, and short-term cancel the appointment. Urgent patient more and more. He wants to develop an app to improve the arrangement. Write down to perspective of each phase.

He can create an application where user can book an appointment based on available time and rules which doctor post them in the application. And on the other hand, doctor can see a list of booked appointments by his or her patients and also can see who cancels his or her appointment. So, based on cancelation doctor can change the booked slot to a free slot and then other patients can book that slot again.

4. Prototype it.





5. How to use concept of gamification with this problem.

Gamification: the application of typical elements of game playing (e.g., point scoring, competition with others, rules of play) to other areas of activity, typically as an online marketing technique to encourage engagement with a product or service.

We can have a quiz game like having some health-related question (ex. how much calories available in 200 grams' meat) and then people can get points and see others points. In this case, we can increase the number of times a user come to our app instead of just coming for booking an appointment and then put our application away.

TASK 02: Social Media

1. Walled Garden describe.

It means creating a "wall" across/around connections and personal data by making sure that the identity of user and their data cannot be easily entered, but only accessed and manipulated via proprietary interfaces.

Properties/Advantages of Walled garden:

Portability:

- Users' data still remain in control of user.
- Lets user share their information stored in social network with other useful applications.

Likability:

- Inform user about content they are tagged in without being member of the social network where the content is shared.

Privacy:

- Control how the user's information is viewed by other's in different contexts.
- Preventing or undoing of data disclosures by others about oneself.

The Problem of Walled Gardens

The importance of the Web has always been its open and distributed nature as a universal space of information. Until recently this space of information has been limited to hypertext web-pages without attention being paid to social interactions and relationships. This was not a particular fault of the Web, in fact but a result of a certain focus of the early Web on documents. However, these kinds of activities are currently restricted to particular social networking sites, where the identity of a user and their data can easily be entered, but only accessed and manipulated via proprietary interfaces, so creating a "wall" around connections and personal data

2. How to add Facebook content in your Website? Something with Activity stream?

```
Request:
curl \ -F 'access_token=Ö' \ -F 'batch=[{"method":"GET",
"relative_url":"me"},{"method":"GET",
"relative_url":"me/friends?limit=50"}]' \ https://graph.facebook.com
Response:
[ { "code": 200, "headers":[ { "name": "Content-Type", "value": "text/javascript; charset=UTF-8" } ],
"body": "{\"id\":\"Ö\"}"},
{ "code": 200, "headers":[ { "name":"Content-Type", "value":"text/javascript; charset=UTF-8"} ],
"body":"{\"data\": [{Ö}]}} ]
example: How to add facebook content to your page-
window.fbAsyncInit = function(){
Fb.init({
appID: 'your-app-id',
xfbml: true,
Version: 'v2.8'
)};
```

3. UseWebID and OpenId have single sign-on. Introduce single sign-on. Describe advantage and disadvantage of single sign-on.

Answer: Single-Sign-On (SSO) is a user-authentication process, in which the user signs in to one screen name, and it makes multiple applications or websites unlocked or logged-in. Usually, the system will have conditional measures that will know what a certain user has access to, permissions, etc., and be able to provide the services. Now, the question brought to attention is, what are the advantages and disadvantages of single-sign-on?

Advantages

- In the healthcare industry, it could be booming with single-sign-on. If a doctor were to need to sign-on to a database to access a patient's files, he/she would also have to access x-rays,

and other data that would be on a different application. Having a single-sign-on for all that would be life-saving and totally worth it. Not only had that, but hours of saved time.

- Apps such as One Login provide easy-access to tons of accounts across the board, particularly social media. It says on their site that they are supporting "identity & access management for the cloud".
- Could work wonders for those with disabilities. Having a disability may limit you from typing a lot of words at one time, or typing fast enough. If a single-sign-on system were in place, one login means much saved time.
- Reduces the chance of forgetting your password. By having your one-set master password, it will be a lifesaver to not have to remember a ton of passwords.
- Reduces IT help desk costs, by reducing the number of calls to the help desk about lost password.
- Newer technologies are being implemented to help detect the attempt to hack a certain system, in which it would lock out the hacker from the remaining systems. But, this has more studying to prove how good it works.

Disadvantages

- Vulnerability problems, such as with authentication, privacy keys, etc.
- The lacking of a backup stronger authentication, such as smart cards or one-time password tokens.
- The SSO is a highly-critical tool to keep up always. If the SSO goes out, the user would lose access to all sites.
- It would be critical to have a good password, one that is very hard to crack. With the reduction of accounts, particularly the fact that SSO is in play, it'll be easier to find and hack accounts. Once the SSO account is hacked, all others under that authentication are hacked as well.
- SSO is bad news for a multi-user computer, especially if the user stays logged in all the time. This is more prevalent of an issue in plant operations, business floors, etc. where multiple users can access the computer (if the original user left their desk).

Examples of current implementations

- Log-in with Facebook
- Log-in with Twitter
- Log-in with Linked-In or Apply with Linked-In
- OneLogin
- ANGEL Learning Systems

TASK 03: Scrum

1. What kind of metric we use for SCRUM estimation?

- T-shirt Sizes (XS, S, M, L, XL XXL, XXXL)
- Fibonacci Sequence (1, 2, 3, 5, 8, 13, 21, 34, etc.)
- Dog Breeds (Chihuahua,……., Great Dane)
- Planning Poker with Fibonacci-oriented sequence (Slide example)

2. A person is responsible for budget, ROI, communicating with stakeholder and prioritize product back log item, which role is he in scrum?

Answer: Product Owner

3. Adapt, transparency, inspects. A list below, cross which aspect it is.

Answer:

- Change Process as soon as possible
- Stakeholder can't reject the project release.

TASK 04: Security

1. How can WebID authenticate user?

Answer: WebID- TLS

2. Privacy standards.

Answer: P3P, POWDER, AIR, XACML, Rule Interchange Format, Device APIs and Policy Working Group, Mozila Privacy icons, ODRL (NOT SURE)

3. What is the goal of OpenID?

Answer: OpenID allows a user to confirm its identity to a Relying Party.

4. A form about webID?

Answer: Parts (1) WebID URI, (2)WebID Certificate, (3) WebID Profile[Explain each term]

Prufung Current Trends in Web Engineering: Sample

1. Scrum Theory

1.1 Peter chooses tasks on his own. He estimates the work he will have with it. Which role does he have in the scrum Process?

Answer: He is part of "The team" (could be developer, tester…).

1.2 Paul is head of department. In the beginning of his sprint, due to his years of experience, he chooses the Tasks and gives them to Team members. What is wrong? Which role does he have in the Scrum process?

Answer: Because in Scrum individual sign up for work of their own choosing. Work is never assigned in Scrum.

1.3 Estimation is an important part of the scrum Process. Write down 3 examples which can occur in it.

Answer:

- Numeric Sizing (1 through 10)
- T-shirt Sizes (XS, S, M, L, XL XXL, XXXL)
- Fibonacci Sequence (1, 2, 3, 5, 8, 13, 21, 34, etc.)
- Dog Breeds (Chihuahua,……,Great Dane)

1.4 Which map (card) based technique is used in Scrum (process)?

Answer: Planning Poker

2. Social Web

2.1 What is difference between a WebAPI and Rest?

Answer:

2.2 Something with JSONP and Same Origin Policy

Answer:

2.3 Your Webserver get 5020 Requests/min. Show ways, how you can handle the number without limiting the Requests itself.

Answer: Batch Request

2.4 The Web Certificate includes besides the WebID URI also the public key of the Usr. Is it mandatory that the public key is part/include the WebID profile? And if yes, why?

Answer: YES

3. HCD

3.1 Describe with the example of a private school the 3 lenses of HCD

- **Desirability**: To build a private school
- **Technical**: All facilities that we need in school.
- **Business**: Once Students register they will have to pay for it so we will get benefit from it.

3.2 Explain the following samples with one sentence: Quantity over Quality

Answer: Put the emphasis on quantity of ideas (as the maxim goes, “quantity breeds quality”). More to know: Many people forget the key to brainstorming is quantity, not quality. Yes, you read that right: quantity, not quality. Brainstorming is the first step in the exploration phase of a new project, so it's important to be open to all ideas and possibilities. Problems arise when team members think they need to filter out the good ideas from the not-so-good ones due to fear of being judged or rejected.

Go For wild ideas

Answer: Be open to bizarre/strange ideas;

Avoid judgment

Answer: Hold back criticism or judgment;

Built on ideas of others

Answer: Blend ideas to enhance them

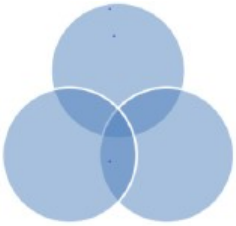
Explain in one sentence why these Statements are important in the Brainstorming progress.

Answer: These rules were established with the objective of lessening social inhibitions if any among the group members, boosting overall group creativity and of course, fueling idea generation. Brainstorming is a conference technique through the practice of which a group endeavors to come up with a solution for a particular problem by collecting all the ideas spontaneously contributed by the participating members.

3.3 Display the following examples visually.

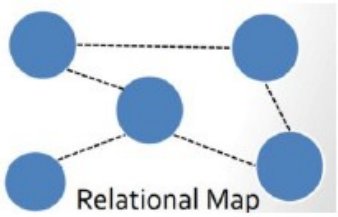
1. The planed Solution has to combine a low price with robustness and safety.

Answer: Venn diagram



2. Resolvers are using Host-, Data, Cache and DNS- Requests. DNS- Requests get made to the DNS-Server and can be Authoritative and non-Authoritative. All DNS-Server are using Resolvers.

Answer: Relational diagram



4. Alignment Diagram

You are the operator of an online rating platform for Restaurants. In future, it has to be possible to make bookings in the different Restaurants over your platform. Therefore, you implemented a few different functions on your Website and got a feedback from the users after a test period.

-Issue of the feedback is described – ½ page text and too much to remember ;) –

- **Use Story Mapping to display the Issue.**
- **Your Map should have 4 Phases.**
- **Derive Backlog-items out of it.**

Answer:

Current Trends in Web Engineering – WS17/18

1. Scrum basics (14 points)

a) Peter represents the interests of the owner, appreciates items, tasks and assigns them to the team. What is not in the sense of scrum? What role does Peter have?

Product Owner

b) What are the problems with the estimation in Scrum? Name 3. What is estimated according to which aspect?

Problems: Complexity, Scrum has no method for measuring accuracy, not following scrum standards.

Non Liner Scales: Team over estimated small user stories and sub estimated large user stories velocity changing.

c) What is the card-based estimation technique in Scrum? Why is it important that all participants reveal the cards at the same time? What happens if there are big differences in the estimates?

Planning poker (also known as Scrum poker) is a consensus-based, gamified technique for estimating, mostly used to estimate effort or relative size of development goals in software development.

Steps for Planning Poker

1. To start a poker planning session, the product owner or customer reads an agile user story or describes a feature to the estimators.
   For example:
   "Customer logs in to the reservation system"
   "Customer enters search criteria for a hotel reservation"
2. Team members of the group make estimates by playing numbered cards face-down to the table without revealing their estimate (Fibonacci values: 1,2,3,5,8,13,20,40)
3. Cards are simultaneously displayed
4. The estimates are then discussed and high and low estimates are explained
5. Repeat as needed until estimates converge

2. Applying Scrum (11 points)

a) There is a velocity and a diagram where the SP for Sprint 1,2,4,6 are given. Name a possible value pair for Sprint 3 and 5 with invoice method.

b) How many SP is the team likely to achieve in Sprint 7?

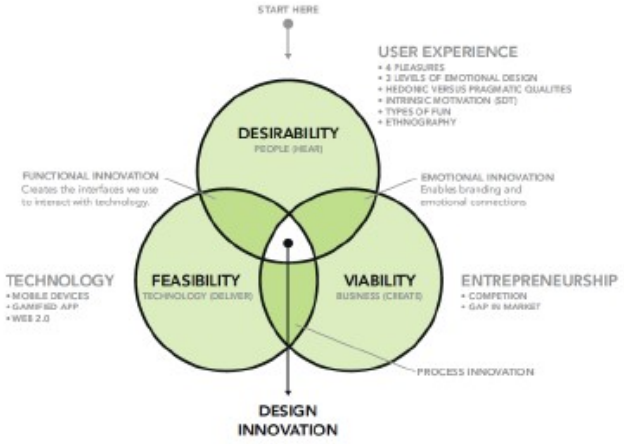
c) Backlog given as a table. Which tasks would you choose for the 7th sprint?

d) Present the project as a burn down chart using the diagram from a) and the table from c). What can you deduce from this?

3. HCD (7 points)

a) Explain the 3 Lenses from HCD. Use private school as a solution that fulfils all 3 lenses. Describe how each lens is fulfilled.

- Desirability (people): What do people want, need, and desire?
- Feasibility (technology): What is technically feasible?
- Viability (business): What is financially viable?



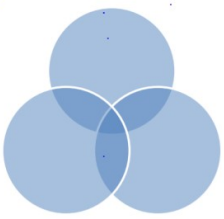
3.2 Given a private School, which fulfils all three lenses? Name how each lenses is fulfilled in this case.

- Desirability: To build a private school.
- Technical: All facilities that we need inschool.
- Business: Once students received admissions, they will have to pay for it so we will get benefit from it.

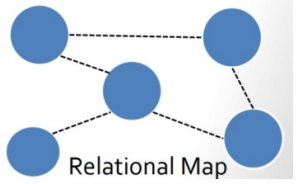
b) Use HCD visualization techniques (frameworks) for the following:

- **The software connects to the refrigerator, and then a shopping list is loaded and displayed to the user**
  Answer: Process Map

- **The software should combine low latency, scalability and xx**
  Answer: Venn diagram



- **Resolver use host files, cache and DNS requests. DNS requests are made to name servers. These can be authenticated and not authenticated. All name servers use resolver.**
  Relational diagram



- **Solutions have two dimensions: robustness and performance. Bad solutions have low performance and low robustness. Average solutions are high in one aspect. Perfect solutions are high in both aspects**
  Answer: Two-by-two Matrix

4. Digital identity (10 points)

a) Explain WebID over TLS with profile Url and website

Introduction:-

The WebID-TLS protocol enables secure, efficient and maximally user friendly authentication on the Web. It enables people to authenticate onto any site by simply choosing one of the certificates proposed to them by their browser. These certificates can be created by any Web Site for their users. This specification extends the WebID Identity [WEBID] specification which defines many of the core concepts used in WebID-TLS, such as the identifier, known as the WebID, as well as the associated Profile Document.

WebIDs can be used to build a Web of trust using vocabularies such as [FOAF] by allowing people to link together their profiles in a public or protected manner. Such a web of trust can then be used by a Service to make authorization decisions, by allowing access to resource depending on the properties of an agent, such that he/she is known by some relevant people, works at a given company, is a family member, is part of some group, ...

The WebID-TLS protocol specifies how a Service can authenticate a user after requesting his or her Certificate without needing to rely on this being signed by a well known Certificate Authority. This is done by dereferencing the WebID Profile, and checking if it describes the user as being in control of the private key related to the Public Key published in the Certificate used to authenticate.

WebID authentication can also be used for automatic authentication by robots, such as web crawlers of linked data repositories, which could be agents working on behalf of users to help them in their daily tasks.

WebID

A WebID is a URI with an HTTP or HTTPS scheme which denotes an Agent (Person, Organization, Group, Device, etc.). For WebIDs with fragment identifiers (e.g. #me), the URI without the fragment denotes the Profile Document. For WebIDs without fragment identifiers an HTTP request on the WebID MUST return a 303 with a Location header URI referring to the Profile Document. Refer to [WEBID] for the normative definition.

WebID Profile or Profile Document

A WebID Profile is an RDF document which *MUST* uniquely describe the Agent denoted by the WebID in relation to that WebID. This document *MUST* be available as Turtle [turtle]. This document *MAY* be available in other RDF serialization formats, such as RDFa [[!RDFA-CORE] or RDF/XML [RDF-SYNTAX-GRAMMAR] if so requested through content negotiation. Refer to [WEBID] for the normative definition.

TLS Service

A TLS Service is a transport level service listening on the Service port. It secures the transport layer before passing messages to the Application layer Service itself. The TLS protocol [TLS] is applied to incoming connections: it identifies the server to the client, securing the channel and is able to request authentication credentials from the Client if needed. Server Credentials and Client credentials traditionally take the form of X.509 Certificates containing a public key. The TLS protocol enables the TLS Service to verify that the Client controls the private key of the Public Key published in the certificate. Trust decisions on other attributes of the Subject published in the Certificate - such as his name - are traditionally based on the trust in the Agent that signed the Certificate - known as a Certificate Authority.

Certificate

A Certificate is a document that affirms statements about a Subject such as its public key and its name, and that is signed by a Certificate Authority using the private key that corresponds to the public key published in its certificate. The Certificate Authority's own Certificate is self signed. Certificates used by TLS are traditionally X.509 [X509V3] Certificates.

Certificate Authority (CA)

A Certificate Authority is a Subject that signs Certificates. It is an Authority for what is written in the Certificate for any Agent that trusts it to be truthful in what it signs. Such agents use the knowledge of the CA's public key to verify the statements made by that CA in any of the Certificates it signed. Services usually identify themselves with Certificates signed by well known and widely deployed CAs available in all agents.

TLS-Light Service or TLS Agent

A TLS-Light Service is a standard TLS Service, without the CA Based Client Certificate Authentication. When receiving a Client Certificate, it simply verifies that the Client knows the private key of the public key published in the Certificate. Verification of attributes in the certificate is left to other services such as the WebID Verifier.

Guard

A Guard is an agent, usually on the Server that can look at a request from the Client and decide if it needs to be authorized by looking at the access control rules for that resource (using the Web Access Control ontology perhaps) If the request requires authorization, the Guard can first demand authentication of the Client and use the WebID Verifier to check any claimed identies that would allow it to come to an authorization decision. Finally the Guard can grant or deny access according to how the verfied identities satisfy the Access Control Rules.

WebID Verifier

A WebID Verifier is an agent trusted by the Server to verify that the Subject identified by the WebID is the one that knows the private key of the given public key. The Verifier uses the procedure determined in this protocol to do the verification.

WebID Claim or Claimed WebID

A WebID Certificate can be thought of as a set of statements made and signed by a Certificate Authority. If the Certificate Authority is not known to be one whose every statement can be trusted, then the statements in the certificate must be thought of by a suspicious guard, as claimed statements only, that is as statements which have not been verified. In particular, statements about the Subject Alternative Names of the agent that knows the private key should not be assumed to be true until verified. A WebID Claim then is the statement of Identity between the Subject Alternative Name and the public key in the certificate. In Turtle this can be written as

```
:bob cert:key [ a cert:RSAPublicKey;
                cert:modulus "00cb24ed85d64d794b..."^^xsd:hexBinary;
                cert:exponent 65537 ] .
```

Verification Agent or WebID Verifier

A WebID Verifier takes a WebID Claim and checks that it is currently true, as explained in Verifying the WebIDs section. A WebID Verification Agent *MUST* be able to parse documents in TURTLE [turtle], RDF/XML [RDF-SYNTAX-GRAMMAR] and RDFa [RDFA-CORE].

WebID Certificate

An X.509 [X509V3] Certificate that identifes an Agent using one or more WebIDs. The Certificate need not be signed by a well known Certificate Authority. Indeed it can be signed by the server which hosts the WebID Profile, or it can even be self signed. The Certificate *MUST* contain a Subject Alternative Name extension with at least one URI entry identifying the Subject. This URI *SHOULD* be one of the URIs with a dereferenceable secure scheme, such as https:// . Dereferencing this URI should return a representation containing RDF data. For example, a certificate identifying the WebID https://bob.example/profile#me would contain the following:

```
X.509v3 extensions:
   ...
   X509v3 Subject Alternative Name:
      URI:https://bob.example/profile#me
```

b) Name a vocabulary from the WebID profile that contains semantic, machine-readable data.

A WebID Profile Page is a Web resource that MUST be available as Turtle [[!TURTLE-TR]], but MAY be available in other RDF serialization formats (e.g. [[!RDFA-CORE]]) if requested through content negotiation.

WebIDs can be used to build a Web of trust using vocabularies such as FOAF [[!FOAF]] by allowing people to link together their profiles in a public or protected manner. Such a web of trust can then be used by a Service to make authorization decisions, by allowing access to resource depending on the properties of an agent, such that he/she is known by some relevant people, works at a given company, is a family member, is part of some group, etc..

cert:key

Used to associate a WebID URI with any PublicKey. A WebID Profile MUST contain at least one PublicKey that is associated with the corresponding WebID URI.

cert:RSAPublicKey

Refers to the class of RSA Public Keys. A RSAPublicKey MUST specify both a cert:modulus and a cert:exponent property. As the cert:modulus and cert:exponent relations both have as domain a cert:RSAPublicKey, the type of the key can be inferred by the use of those relations and need not be written out explicitly.

cert:modulus

Used to relate an RSAPublic key to its modulus expressed as a hexBinary. An RSA key MUST have one and only one modulus. The datatype of a modulus is xsd:hexBinary. The string representation of the hex:Binary MUST not contain any whitespaces in between the hex numbers.

cert:exponent

Used to relate an RSAPublic key to its exponent expressed as a decimal integer. An RSA key MUST have one and only one exponent. The datatype of a modulus is xsd:integer.

c) Explain the pros and cons of single sign-on and name two other examples in addition to WebID.

The Pros of SSO

- **Simplifies password management:** A core benefit of SSO is that, as a solution, SSO eliminates much of the tedium of managing user passwords. Ultimately, with SSO, IT admins only need to make sure their users are being managed at the identity provider (IdP) level with their directory service.
- **Increases admin control:** With SSO, IT admins can have better visibility as to what apps their end users are using, meaning fewer chances for shadow IT and other potential risk factors flying under the radar.
- **Increases speed for critical log in processes:** The average employee spends 36 minutes a month solely entering passwords. While it may seem insignificant, when password entry stands in the way of split-second action, as needed in fields such as healthcare or law enforcement, SSO ensures instant access.
- **Reduces security risks:** SSO eliminates the need for multiple passwords, meaning fewer attack vectors as a whole for bad actors. This means less risk for your affiliates (partners and customers) as well as your organization.
- **Reduces password fatigue:** Password fatigue can drive even the most vigilant employee towards complacency. Eliminating password-based log ins with SSO tackles the heart of password fatigue by distilling credential verification to the SAML protocol and process.
- **Decreases help desk requests:** The average password request costs $70 in help desk labor cost. Since SSO greatly simplifies password management, it takes much of the burden off the shoulders of IT help desks, saving time and money.

The Cons of SSO

- **Costly/Best at scale:** Simply put, SSO can get expensive, fast. For smaller companies, while SSO can provide great benefits, it can also become a burden on budgets.

- **Requires IdP:** The backbone of any SSO solution is an IT organization's IdP/directory service. Of course, like SSO, these can become costly for organizations, both in overhead required for set-up and implementation, as well as the overall toll to the pocketbook.
- **Mainly limited to web apps:** IAM is a massive field, spanning much of the responsibilities of IT. Managing access to web apps with SSO is only a small portion, meaning IT admins need to employ a whole host of solutions alongside SSO.
- **Requires extra-strong passwords:** While end users only need to remember a single password for SSO, it is best if that password is long, complex, and well-protected. Although this is generally a boon for identity security as a whole, it also opens up the possibility of a user forgetting or compromising this password, nullifying the benefit of SSO.
- **If an SSO provider is hacked, all connected resources are open to attacks:** Since SSO is linked to many critical resources, if an SSO provider is targeted by an attack, entire user bases will be compromised.
- **SSO requires implementation and configuration:** Like many IT tools, SSO is rarely "plug-and-play," meaning IT admins have to put in the required time and effort to integrate and tailor their SSO service to their organization.
- **Multi-use computers present a problem:** In an instance where there is a shared computer (i.e. conference rooms), the use of an SSO solution can open unnecessary attack vectors in the case that a user forgets to log out.

5. Social Web (11 points)

a) Explain the Walled gardens problem.

A Walled Garden is a closed ecosystem in which all the operations are controlled by the ecosystem operator.

The Problem of Walled Gardens

There are four major problems experienced by the end user:

1. **Portability**: An ordinary user can not download their own data and share it how they like. Information stored on social networks could be useful for any number of applications, but the lack of portability of tediously entered social networking information causes users to continually re-enter and update their personal information, wasting their time.
2. **Identity**: Not having a easy way to manage digital identity across digital networks leads to unsafe re-usage of passwords. Every time a user goes to a new site, they must not only create a new username and password, but re-find their friends and entice friends to move sites with them. Porting personal data from one network to another does not solve the problem of losing one's friends if one moves.
3. **Linkability**: Users have no way of being notified if they are being mentioned on a social networking site which they are not a member of. For example, if someone takes a photo of some friends at a party and wishes to publish it on the Web to share with those friends, but does not wish to make that publicly available, he must find a social network where each one of them is already a member, or simply not tell people that the photo has been uploaded.
4. **Privacy**: A user cannot control how their information is viewed by others in different contexts by different social applications even on the same social networking site, which raises privacy concerns. Privacy means giving people control over their data, empowering people to they can communicate

the way they want. This control is lacking if configuring data sharing is effectively impossible or data disclosure by others about oneself cannot be prevented or undone.

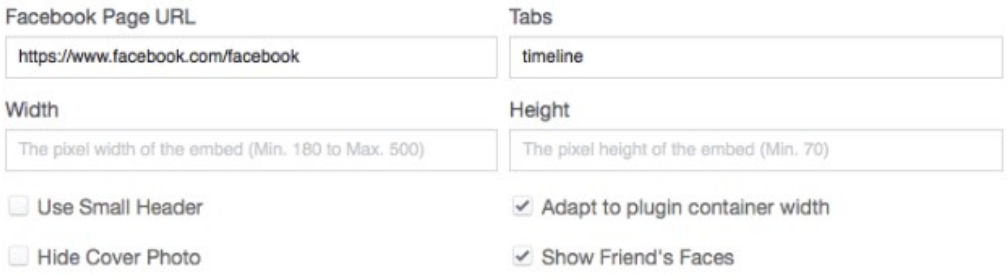
Salmon Protocol

The Salmon Protocol is a message exchange protocol running over HTTP designed to decentralize commentary and annotations made against newsfeed articles such as blog posts.

b) How can you integrate a Facebook timeline of the current user into a website?

If you still want to add the timeline (AKA news feed or posts) from your Team's Facebook page to your SwimOffice website, follow these steps.

1. First, your Facebook page must be setup as a celebrity, band, or business page. It cannot be a personal page. You can setup a Facebook page if you don't have one.
2. Go to this Facebook page to generate the code needed for your timeline. https://developers.facebook.com/docs/plugins/page-plugin
3. Enter your team's Facebook Page URL in that field (replace the default value pictured below).



4. Optional: Set the Width and Height (default is 340 x 500 pixels).
5. Set any other desired parameters.
6. Click **Get Code**.
7. Click **IFrame** tab at top.

8. Select the code and copy it (Ctrl+C in Windows, Command+C on Mac).
9. Follow the steps in Facebook Social Plugins to paste the code where you want it on your TeamUnify site.

Facebook Social Plugins:-

Add to Home Page - Chameleon

1. On your TU site in the side menu click **Team Admin > Website Design > Website Layout Configuration**.
2. Scroll down to *Command Button Controls* section and click **Main Text** tab.
3. Paste the code where you want the plugin.
4. Click **Save Changes**.

Add to Home Page - New CMS

1. On your TU site in the side menu click **Website Design**.
2. Click the **Main Text** overlay.
3. Click **< > Source...** on the right.
4. Paste the code where you want the plugin.
5. Click **Update**.
6. Click **Save**.

Add to a page - Chameleon

1. Go to the page on your TU site where you want the plugin.
2. In the upper right, click **Edit**.
3. Click **Source** in the upper left.
4. Paste the code where you want the plugin.
5. Click **Save Changes**.

Add to a page - New CMS

1. On your TU site in the side menu click **Website Design**.
2. Click the page name in the top menu where you want the plugin.
3. Click the **Custom Page** overlay.
4. Click **< > Source...** on the right.
5. Paste the code where you want the plugin.
6. Click **Update**.
7. Click **Save**.

c) Given a web service request (in JSON, with id, msg, post, next, previous) that contains a Facebook post from a Facebook timeline. What kind of WS is that likely?

REST

d) Can someone else query the information from the timeline?

e) How can you get the following 10 entries from the WS?

6. Alignment map (16 points)

a) Draw a tabular alignment map with 4 phases and the aspects of goal, touch point, experience and backlog. You should derive the backlog items from the suggestions for improvement. Basically it was about a hotel search, room reservation, sharing experiences during the stay and finally giving feedback after the visit. The information had to be gathered from a continuous text describing the experiences of users.

Alignment Map

	Stage 1	Stage 2	Stage 3	Stage 4	Future Stage
Stage Goals	Getting information about trip	Validation of the booking	Get personal details	Finalizing the booking	Customizing the booking

Actions	Choose dates and no. of travelers	Validate the booking price and conditions	Fill and send your personal details	50% prepayment	Modify dates or no. of travelers
Feelings	happy	So So	Ok ok	Not so happy	happy
Touchpoints	'Book your stay' panel	'Terms and Conditions' Panel	'Fill details' Form	'Confirm your Stay' Panel	My trips panel
Servings/offerings	Calenders, Rooms, Price List, Add-ons	Rules and Regulations	Personal Details Form	Booking Review, Payment Options	Change Dates, People or Cancel
Processes	Create a guest account	Link the guest profile with the validated data	Generate profile for the guest with given details	Accept the payment and add it booking to reservations DB	Add this booking to 'MyTrips' DB

Use Story Mapping

Goal	Activities	Tasks	Stories
Reduce content to remember	Divide content	Select menu category	1. Build category navigation
		View Items in the selected Category	1. Display list for selected category 2. Ability to filter items 3. Ability to sort items
		Choose Item to know more	1. Display Item details with some reviews 2. Option to read more reviews 3. Some pictures which can be scrolled

Backlog-Items

Backlog item	Estimate
Allow a user to choose menu category	3
As a user, I want to see the items in the category	5
As a user, I want to choose one of them to know more	3
Allow a user to see some pictures related to the chosen item	2
Allow user to read the reviews about that item	3

Additional Notes – Current Trends in Web Engineering:-

What Is Agile Methodology?

Agile methodology is a practice that helps continuous iteration of development and testing in the SDLC process. Agile breaks the product into smaller builds. In this methodology, development and testing activities are concurrent, unlike other software development methodologies. It also

encourages teamwork and face-to-face communication. Business, stakeholders, and developers and clients must work together to develop a product.

What Is Scrum?

Scrum is an agile process that allows us to focus on delivering the **business value** in the shortest time. It rapidly and repeatedly inspects actual working software. It emphasizes accountability, teamwork, and iterative progress toward a well-defined goal.

The Scrum Framework usually deals with the fact that the requirements are likely to change or most of the time not known at the start of the project.

Agile	**Scrum**
Agile is a development methodology based on **iterative and incremental approach**.	Scrum is one of the implementations of agile methodology. In which **incremental builds** are delivered to the customer in every two to three weeks' time.
Agile software development has been widely seen as highly suited to environments which have **small but expert project** development team	Scrum is ideally used in the project where the requirement is **rapidly** changing.
In the Agile process, the **leadership** plays a vital role.	Scrum fosters a **self-organizing**, cross-functional team.
Compared to Scrum it is a more **rigid** method. So there is not much room for frequent changes.	The biggest advantage of Scrum is its **flexibility** as it quickly reacts to changes.
Agile involves **collaborations** and face-to-face interactions between the members of various cross-functional teams.	In Scrum, collaboration is achieved in **daily stand up meeting** with a fixed role assigned to scrum master, product owner, and team members.
Agile can require l**ots of up-front development process** and organizational change.	Not **too many changes** needed while implementing scrum process.
The agile method **needs frequent delivery** to the end user for their feedback.	In the scrum, after each sprint, a **build is delivered** to the client for their feedback.
In this method, each step of development like requirements, analysis, design, are **continually monitored** during the lifecycle.	A demonstration of the functionality is provided at the end of every sprint. So that **regular feedback** can be taken before next sprint.
Project head takes cares of all the tasks in the	There is no team leader, so the **entire team**

agile method.	**addresses the issues** or problems.
The Agile method **encourages feedback** during the process from the end user. In this way, the end product will be more useful.	**Daily sprint meeting** is conducted to review and feedback to decide future progress of the project.
Deliver and update the software on a regular basis.	When the team is done with the **current sprint activities**, the next sprint can be planned.
Design and execution should be kept **simple**.	Design and execution can be **innovative and experimental**.
In the Agile method, the priority is always to satisfy the customer by providing **continuous delivery** of valuable software.	**Empirical Process Control** is a core philosophy of Scrum based process.
Working software is the most **elementary measure** of progress.	Working software is **not an elementary measure**.
It is best to have **face-to-face communication**, and techniques like these should be used to get as close to this goal as possible.	Scrum team focus to deliver **maximum business value**, from beginning early in the project and continuing throughout.
Following are Agile principles: -Welcome changing requirements, even late in development. Agile processes allow change according to **customer's competitive advantage**. -Business people and developers will **work daily** throughout the project. -Attention to **technical excellence** and right design enhances agility -Agile team, work on to become more effective, for that they **adjust its behavior** according to the project.	**Following are scrum principles:** **-Self-organization:** This results in healthier shared ownership among the team members. It is also an innovative and creative environment which is conducive to growth. **-Collaboration:** Collaboration is another essential principle which focuses collaborative work. 1. awareness 2. articulation, and 3. appropriation. It also considers project management as a shared value-creation process with teams working together to offer the highest value. **-Time-boxing:** This principle defines how time is a limiting constraint in Scrum method. An important element of time-boxed elements are Daily Sprint planning and Review Meetings. **-Iterative Development:** This principle emphasizes how to manage changes better and build products which satisfy customer needs. It

also defines the organization's responsibilities regarding iterative development.

Conclusion:

- Agile methodology is a practice that helps continuous iteration of the development process.
- In the Agile method, the priority is always to satisfy the customer by providing continuous delivery of valuable software.
- Scrum is an agile process that allows us to focus on delivering the highest business value.
- The main benefit of Scrum is its flexibility as it quickly reacts to changes.
- In the Agile process, the leadership plays a vital role.
- In Scrum, daily sprint meeting is conducted to review and feedback to decide future progress of the project.
- In Scrum, when the team is done with the current sprint activity, the next sprint can be planned.

Why is Estimation / Pre-Planning important?

- The product backlog can be prioritized. It is impossible to fully prioritize a set of items without knowing at least their relative cost.
- We can make high-level forecasts about how much will be done by when
- We can make tradeoffs decisions between scope and schedule

Affinity Estimation:

Affinity Estimating is a technique many agile teams use too quickly and easily estimate a large number of user stories in story points. This is a great technique if a project has just started, and has a backlog that hasn't been estimated yet, or in preparation for release planning.

Characteristics of agile affinity estimation:

1) Quick and Easy
2) Make decision fairly transparent and visible
3) Create a positive and collaborative experience rather than confrontational exercise inestimation session.

Participants of agile affinity estimation:

1) Product Owner of a project
2) Delivery agile Team
3) Scrum Master to facilitate

Definition of Ready:

Having a Definition of Ready means that stories must be immediately actionable. The Team must be able to determine what needs to be done and the amount of work required for complete the User Story or PBI.

Definition of Done:

Each **Scrum** Team has its own **Definition of Done** or consistent acceptance criteria across all User Stories. A **Definition of Done** drives the quality of work and is used to assess when a User Story has been completed.

The 3 Things Scrum Teams Get Wrong

If you've learned Scrum and tried to implement it in any large organization you've likely run into a few issues. Getting dedicated people on your team is hard. Building cross-functional teams is really hard. Breaking your work down into small problems your customers care to have solved is probably the hardest. I'd like to talk a little about what I see as the most common three things Scrum teams get wrong.

If you're struggling with the above you'll see the symptoms immediately. As a matter of fact, when I'm first working with new Scrum teams, these are the first things I look for.

#1 – Your backlog is a list of hamburger orders

Take a look at your backlog. Does every item on it have a technical title and little else to describe it? If so, you have a backlog of hamburger orders. Hamburger orders don't get questioned. The customer usually knows they want two patties, grilled onions, ketchup, and mustard. It's not your jobs as a short order cook to ask the customer how many people they're trying to feed or if they have a cholesterol problem.

In knowledge work, **it is your job** to know what problem you're solving, so it can be solved. So often my clients will start from a 'requirements' document, break it down to a list of must- haves, and the team blindly builds them.

What's the problem?

Teams can't be creative if told exactly what to do. Sadly, this is how many developers are used to working. It doesn't have to be this way. If you treat developers like hamburger order takers you will increase total delivery times, increase time-to-first-value, reduce quality, and discourage innovation.

What can I do?

Present business problems to Scrum teams. Better yet, provide them in order of importance. Work with your technical teams to represent the value needed on a product in terms of problems to solve and document it… then let the technical teams figure out how to solve the problems. Ensure that anyone who reads the backlog can understand the problems to improve communication between the stakeholders and development teams and reduce the need to translate. You did hire smart people, right? Then enable them to be brilliant and empower them to creatively the tackle problems they were trained to solve.

#2 – Your development team isn't a team at all.

Well, your team is more like a football team that has a sub team of quarterbacks, another sub team of linebackers, and another for kickers that gather every Sunday to play, but your team doesn't always get the same players.

What's the problem?

Your teams aren't thinking like teams, not working like teams, and not succeeding like teams. They have different and competing goals. Those goals rarely align to solve business problems effectively. One of the key benefits to building a cross-functional product-aligned team is to give the team all the skills needed to deliver value, and keep them focused on the same goals. Another problem might stem from having people collected as teams, but they're working on initiatives that have nothing to do with one another.

What can I do?

Take a temperature of the team. Do they have the same goals? Do they really act like a team? Do they work like a team? If they don't have the same goals, fix that first. Forget Scrum. Forget agile. Good teams solve problems. Reduce the amount of work in progress your team is handling by properly filtering all the requests coming into the team into a single ordered backlog. This is where a strong Product Owner is key.

Work to build and grow your team from the inside… this is a people problem. Start with understanding Tuckman's stages of group formation (Forming, Storming, Norming, and Performing) and help guide the team through that journey. A strong Scrum Master would be a key individual I'd look to for this difficult job.

#3 – Your team has no way to know if they're on track to finish a large release

What's the problem?

When a team doesn't properly refine a backlog during a Sprint you'll have only a few Sprints worth of estimates. This makes it very difficult to know if the team is on track toward hitting important milestones. If you don't know, you're back to guessing and I'm confident there are people in your org that want to know how you're progressing. A common thing I hear is "*we're doing Scrum, so we don't do dates*." Well, that's just unacceptable to anyone writing your checks. Unless you want to keep having status report meetings, let's find another way.

What can I do?

You can release plan if you regularly refine your backlog. Aim to build domain knowledge, create clear description, and track your team's velocity. A good place to start is by writing your backlog items in the form of a user story. Then write good acceptance criteria and apply the INVEST model (see my references):

When your team has a good understanding of the problems they're solving, they can estimate them and deliver the solutions in order of most important. It's common in agile circles to use story points as a means by which to estimate. If you do so, they give you a number on the Y-Axis and time in units of Sprints on the X-axis.

A release plan graph (like the above) will give your organization visibility into your progress over time. If stakeholders don't like what they see, they can make a business decision sooner. Show this release burndown in every Sprint review and highlight the updates as your 'Actual' line changes over time.

Conclusion

If you're on a team suffering the 3 things scrum teams get wrong, know that it's common. But also know you don't have to suffer. Take these ideas and improve your team today.

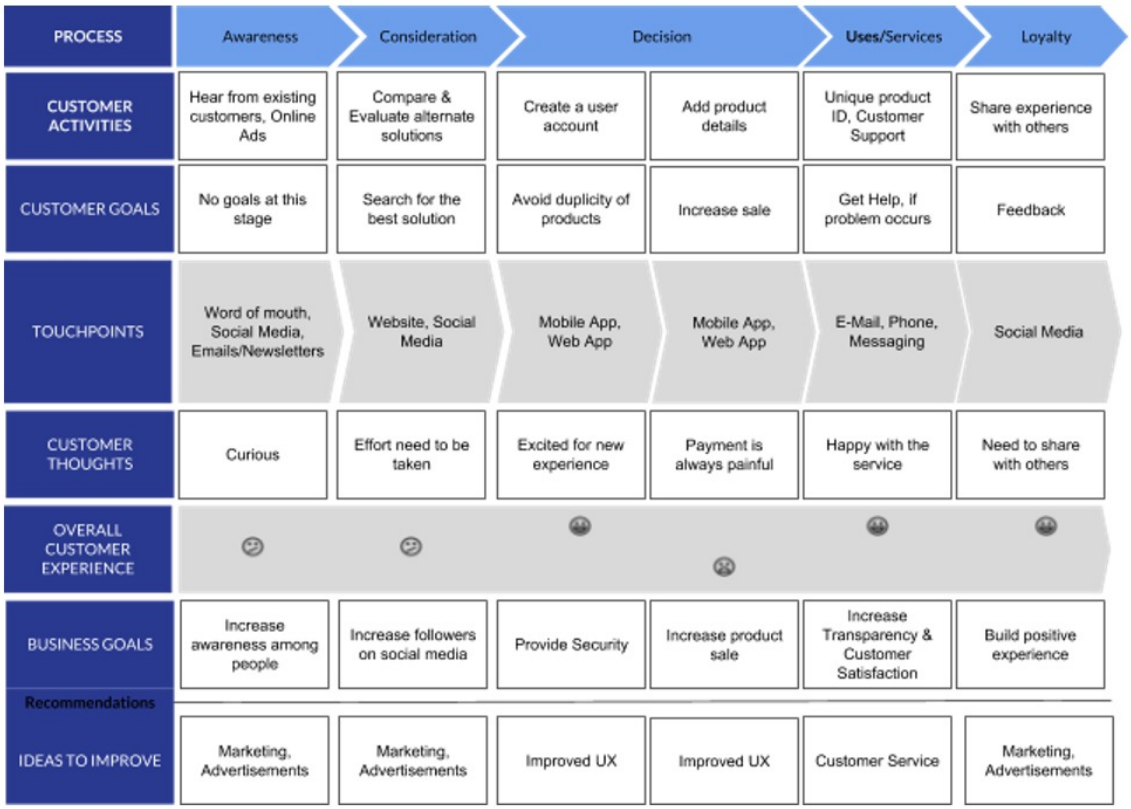
Alignment Diagrams:-

- The term alignment diagram refers to any map, diagram, or visualization that reveals both sides of value creation in a single overview. They are a category of diagram that illustrates the interaction between people and organizations.
- Alignment Diagrams are graphical representations of an experience or journey from the point of view of either a user or a product in use.

- We propose the term “alignment diagrams” to describe the class of maps and diagrams that visualize touch points in a business process.
- The primary benefit of an alignment diagram isn’t necessarily the diagram itself, but the process of creating it.

Alignment Diagrams designates a diagram type that visually combines the user side and the business side. Alignment diagrams are suitable for identifying values at the interface of both sides and can therefore make an important contribution as a means of communication in the development of strategic innovations.

Examples of Alignment Diagrams are Customer Journey Maps, Mental Model Diagrams and Service Blueprints



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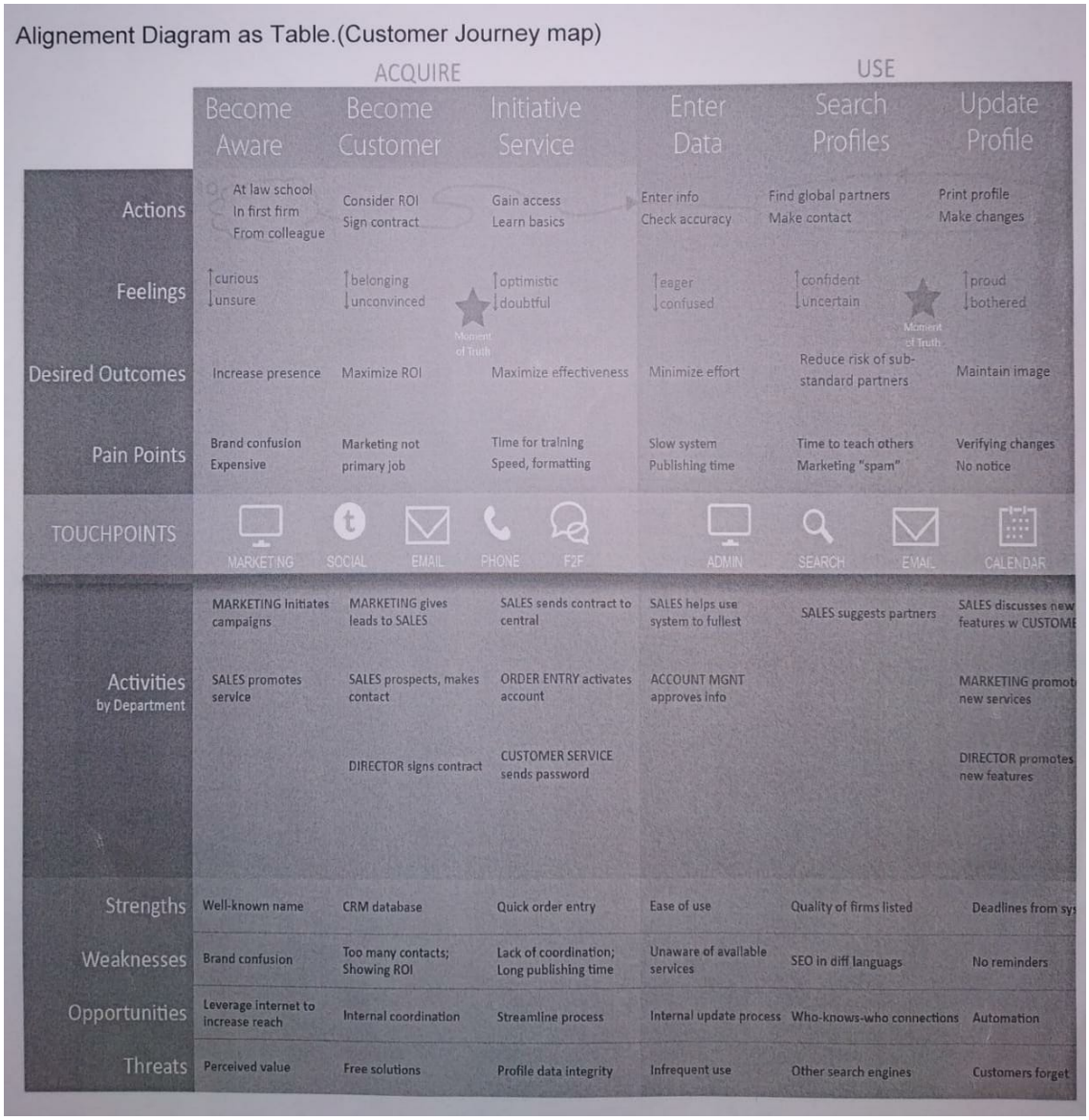


How to Create a Customer Journey Map

Many organizations function with an internal focus, and that becomes apparent when customers interact with their various products, services and employees. Every interaction a customer has with an organization has an effect on satisfaction, loyalty, and the bottom line. Plotting out a customer's emotional landscape by way of a Customer Journey Map, or Experience Map, along their path sheds light on key opportunities for deepening those relationships.

What is a Customer Journey Map?

A Customer Journey map is a visual or graphic interpretation of the overall **story from an individual's perspective** of their relationship with an organization, service, product or brand, over time and across channels. Occasionally, a more narrative, text-based approach is needed to describe nuances and details associated with a customer experience. The story is told from the customer's perspective, but also emphasizes the important intersections between user expectations and business requirements.

Inspired by user research, no two journey maps are alike, and regardless of format they allow organizations to consider interactions from their customers' points of view, instead of taking an inside-out approach. They are one tool that can help organizations evolve from a transactional approach to one that focuses on long term relationships with customers built on respect, consistency and trust.

All organizations have business goals but leveraging customer journeys as a supporting component of an experience strategy keeps customers (or members, patients, employees, students, donors etc.) at the forefront when making design decisions. They can be used in both current state review and future state visioning to examine the present, highlight pain points and uncover the most significant opportunities for building a better experience for customers.

How Do We Use Them?

Customer engagement is not simply a series of interactions, or getting people to visit a website, "Like" something on Facebook, or download a mobile app. Genuine engagement centres on compatibility, and identifying how and where individuals and organizations can exist harmoniously together. Giving thought to how your organization/product/service/brand fits into customers' lives is crucial.

I also use journey maps to gain internal consensus on how customers should be treated across distinct channels. Holding collaborative workshops with cross-disciplinary teams mixing people who otherwise never communicate with each other can be extremely valuable in large organizations in particular.

Illustrating or describing how the customer experience could be brought to life across channels allows all stakeholders from all areas of the business to better understand the essence of the whole experience from the customer's perspective. How do they want to be spoken to, what are they thinking, feeling, seeing, hearing, and doing? Journey maps help us explore answers to the "what ifs" that arise during research and conceptual design.

What Components Does a Journey Map Include?

Must-haves

- **Personas**: the main characters that illustrate the needs, goals, thoughts, feelings, opinions, expectations, and pain points of the user;
- **Timeline**: a finite amount of time (e.g. 1 week or 1 year) or variable phases (e.g. awareness, decision-making, purchase, renewal);
- **Emotion:** peaks and valleys illustrating frustration, anxiety, happiness etc.;
- **Touch points**: customer actions and interactions with the organization. This is the WHAT the customer is doing; and
- **Channels**: where interaction takes place and the context of use (e.g. website, native app, call centre, in-store). This is the WHERE they are interacting.

Nice-to-haves

- **Moments of truth**: A positive interaction that leaves a lasting impression, often planned for a touch point known to generate anxiety or frustration; and

- **Supporting characters:** peripheral individuals (caregivers, friends, colleagues) who may contribute to the experience.

The Process

1. Review Goals

Consider organizational goals for the product or service at large and specific goals for a customer journey mapping initiative.

2. Gather Research

Review all relevant user research, which includes both qualitative and quantitative findings to provide insights into the customer experience. If more research is needed, get those research activities in the books. Some of my favourite research methods include customer interviews, ethnography & contextual inquiry, customer surveys, customer support/complaint logs, web analytics, social media listening, and competitive intelligence.

3. Touchpoint and Channel brainstorms

As a team, generate a list of the customer touchpoints and the channels on which those touchpoints occur today. Then brainstorm additional touchpoints and/or channels that can be incorporated in the future journeys you will be mapping. For example, the touchpoint could be "pay a bill", and the channels associated with that touchpoint could be "pay online", "pay via mail" or "pay in person".

4. Empathy map

Empathy maps are a depiction of the various facets of a persona and his or her experiences in a given scenario. This exercise helps me organize my observations, build a deeper understanding of customers' experiences, and draw out surprising insights into what customers need. Empathy maps also provide a foundation of material to fuel journey mapping. The goal is to get a well-rounded sense of how it feels to be that persona in this experience, specifically focusing on what they're thinking, feeling, seeing, hearing, saying and doing.

5. Brainstorm with lenses

The goal of lensed brainstorming is to generate as many ideas as possible in a short period of time. To gain focus as I generate ideas I use "lenses"—words representing key concepts, brand attributes or mindsets that help us look at a problem or scenario in a different way. For this exercise I recommend that the team agree on 3-5 lens words (for example: accessible, social, comforting), then set the clock for 2 minutes per lens word. Each person individually writes down as many ideas as they can think of in that time. After 2 minutes switch to the next lens word until all lens words have been used as idea inspiration. This ensures that every voice on the team is heard and generates a huge inventory of ideas.

6. Affinity diagram

This is a method to visually organize ideas and find cohesion in the team's concepts. Affinity diagramming helps us shift from casting a wide net in exploring many possibilities, to gaining focus on the right solutions for this audience. All team members should put their ideas generated in the lensed brainstorming activity up on the wall. Have someone sort the ideas into categories and label them. As a group, begin to consider where you might combine, refine, and remove ideas to form a cohesive vision of the future customer experience.

7. Sketch the journey

Drumroll, please. This is the part you've been waiting for! It's now time to put together all the pieces: timeline, touch points, channels, emotional highs and lows, and all the wonderful new ideas the team generated for how to improve the future customer journey. Get creative with how you lay it out—it doesn't have to be a standard left to right timeline. It could be circular or helical. It could be one large map or it could be an interactive, clickable piece with embedded video. There are no templates, and there are infinite possibilities.

8. Refine and digitize

Journeys don't always become a sophisticated deliverable—sometimes they begin and end as sticky notes on a wall or sketches on a whiteboard. But most of the time, when you go through the activities to arrive at a solid customer journey map, you want to polish it, leverage it in your work and share it with colleagues across the organization. If visual design isn't your strong suit, consider collaborating closely with a visual designer who can transform the journey map sketch into an impressive artefact.

While journey maps are usually a tangible deliverable, like the one above, the process of journey mapping is what's most important – it pushes us to think deeply about how we can use experience design to have a positive impact on our customers.

9. Share and use

It can be beneficial to maintain journey maps over time. For example, you could set a time each quarter or year to evaluate how your current customer experience matches your documented vision journeys. If your organization tracks quantitative KPIs, you can integrate these into a journey benchmarking process. Socializing journeys among stakeholders is critical in moving your organization toward action.

In addition to prioritization, the output of a journey map can serve as a backbone for strategic recommendations and more tactical initiatives.

For example, if you're a mortgage company and you identify the closing process as a key area of frustration, anxiety and opportunity for engaging with the customer and designing for the "moment of truth", then mark this as a high priority and get that on your strategic roadmap.

Tips

Schedule enough time to properly go through the recommended process. I've found that you can document a current state journey in about 3 hours and a future state journey in about 5 hours. This makes for a full day to do both for one persona.

Make sure a good mix of people is involved in the journey map creation. It's helpful to have stakeholder participants from many areas of the organization, as well as people of varying levels of seniority.

Once the journey maps are created, share them with zeal. Shout them from the rooftops and display them prominently in common areas.

Design Thinking:-

Design Thinking: Design thinking utilizes elements from the designer's toolkit like empathy and experimentation to arrive at innovative solutions. By using design thinking, you make decisions

based on what future customers really want instead of relying only on historical data or making risky bets based on instinct instead of evidence.

“Design thinking is a human-centered approach to innovation that draws from the designer's toolkit to integrate the needs of people, the possibilities of technology, and the requirements for business success.”

Thinking like a designer can transform the way organizations develop products, services, processes, and strategy. This approach, which IDEO calls design thinking, brings together what is desirable from a human point of view with what is technologically feasible and economically viable. It also allows people who aren't trained as designers to use creative tools to address a vast range of challenges.

Human-Centered Design:-

Human Centered Design (HCD) is a process used to create new solutions for the world. These solutions can include products, services, environments, organizations and multiple modes of interaction.

Human-Centered Design is used to overcome the poor design of software products. By emphasizing the needs and abilities of those who are to use the software, it improves the usability and understandability of products. The reason this process is called “human-centered” is because, as opposed to Activity-Centered Design, it starts with the people we are designing for. In other words it begins by examining the needs, dreams, and behaviors of the people through, what some call, the Desirability Lens.

We view the world through the Desirability lens throughout the design process. Once desires and needs are identified, solutions can then be viewed through the lenses of Feasibility and Viability. We carefully bring in these lenses during the later phases of the process.

The process of human-Centered Design starts with a specific Design Challenge and goes through three main phases:

• **Hear** the needs of the people and communities for whom you are designing. During the hearing phase, the designer conducts field research, collects stories, interviews, documentation, and seeks inspiration by spending time within the community. This phase does not consist in observation and interpretation only; instead it heavily involves the community members who act as participants.

• **Create** innovative approaches to meet their needs. In the creating phase, the design team works together in a workshop format to translate what was heard from people into frameworks, opportunities, solutions, and prototypes. During this phase we move from concrete to more abstract thinking in identifying themes and opportunities, and then back to the concrete with solutions and prototypes.

• **Deliver** solutions that suit specific cultural and economic contexts. The process will move your team from concrete observations about people, to abstract thinking as you uncover insights and themes, then back to the concrete and tangible solutions. The delivering phase will realize solutions through rapid revenue and cost modeling, capability assessment, and implementation planning. This will help launch new solutions into the world.

The Advantages:

- Designer adapts to the person or community.
- Can overcome the poor design of products.
- Improves usability and understandability of products.
- Fewer errors during usage of products.
- Faster learning times.

The Disadvantages:

- Software complexity still remains.
- Can lead to too specialized products, making its less appropriate for others.
- The focus upon humans may detract from supporting the activities themselves.
- Too much attention to the needs of the users can lead to a lack of cohesion and added complexity in the design.

IDEO is one of the most innovative and award-winning design firms in the world.

They're like the secret weapon of innovation for companies like Microsoft, Hewlett-Packard, Pepsi, and Samsung.

Over the last few decades, they've designed hundreds of products, like the first computer mouse for Apple in 1980, the Palm Pilot in 1998, a school system in Peru, and the 25-foot mechanical whale used in the movie *Free Willy*—to name a few.

But perhaps the most interesting thing about IDEO is that Founder David Kelley doesn't consider them to be experts in any specific industry or vertical.

He says, "We're kind of experts on the process of how you design stuff." You could hire them to design a vending machine, an app, a mattress, or a space shuttle, and it would all be the same to them.

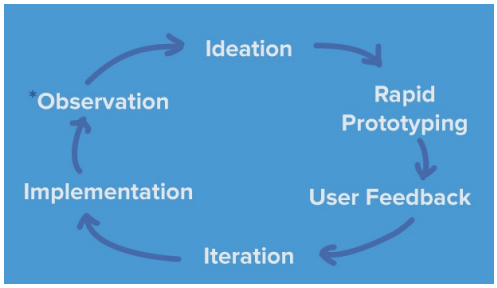
IDEO's main tenet is empathy for the end-user of their products. They believe that the key to figuring out what humans really want lies in doing two things:

- **Observing user behavior —** Try to understand people through observing them. For example, if you're designing a vacuum cleaner, watch people vacuum.
- **Putting yourself in the situation of the end-user —** IDEO does this to understand what the user experience is really like; to feel what their users feel.

Then, they use the information they gain to fuel their designs.
IDEO designers trust that as long as they stay connected to the behaviors and needs of the people they're designing for, their ideas will evolve into the right solution. In other words, they let the end-user tell them what they need to focus on building.
If you want to improve a piece of software all you have to do is watch people using it and see when they grimace, and then you can fix that.

Sometimes the best ideas are so obviously staring us in the face that we miss them. We can't see them because we're looking at things from the outside in, instead of looking at things through the eyes of the end-user.
That's why the folks at IDEO strategically put users at the core of everything they do—a process they refer to as human-centered design.

What is Human-Centered Design?
IDEO defines human-centered design as a creative approach to problem solving that starts with people and ends with innovative solutions that are tailor made to to suit their needs.
In their Field Guide to Human-Centered Design they say, "When you understand the people you're trying to reach—and then design from their perspective—not only will you arrive at unexpected answers, but you'll come up with ideas that they'll embrace."
This is the central philosophy that human-centered design revolves around. Whether you're designing physical or digital solutions, the process is the same and it consists of six phases:



Phase 1: Observation
The first phase is all about observing the end-user, learning, and being open to creative possibilities.
Your goal is to understand the people you're designing for.
Identify patterns of behavior, pain points, and places where users have a difficult time doing something—these all lend to tremendous opportunity. If you can, put yourself in their situation so you can see what their experience is, and feel what they feel.
Phase 2: Ideation
In this phase you start brainstorming ideas with your team based on what you learned from your observations and experiences in Phase 1.
Your goal is to come up with as many ideas as you can.
As you're coming up with ideas, stay focused on the needs and desires of the people you're designing for. If you do this, your group's ideas will eventually evolve into the right solution.

Phase 3: Rapid Prototyping

In this phase you're going to quickly build a simple prototype of your idea. This makes it tangible and gives you something to test with the end-user.

Don't try to build a fancy high-fidelity prototype right now. IDEO is notorious for creating simple prototypes made out of cardboard.

Ask yourself this: What can I spend the minimum amount of time building that will allow me to get user feedback as quickly as possible? The purpose of this phase isn't to create the perfect solution, it's to make sure your solution is on target.

Phase 4: User Feedback

Get your simple prototype into the hands of the people you're designing for.

This is the most critical phase of the human-centered design process. Without input from your end-user you won't know if your solution is on target or not, and you won't know how to evolve your design.

Phase 5: Iteration

Once you get feedback from your users, use that information to fuel the changes to your design.

Keep iterating, testing, and integrating user feedback until you've fine tuned your solution. This may take a few rounds, but don't get discouraged. With each iteration you'll learn something new.

Once you've gotten your solution to a point where it's ready to be used, it's time to move on to the next and final phase.

Phase 6: Implementation

Now that you've validated the usefulness of your solution with the end-user and gotten your design just right, it's time to get your idea out into the world.

If you're designing software products, apps, or websites, go back to Phase 1 and repeat this process. With each new update that you implement, continue to observe your users, design for them, and use their feedback to direct your future solutions.

Examples of Human-Centered Design at IDEO

IDEO has used this process over and over again to design delightful products and experiences that people love.

You might be wondering how exactly you're supposed to get started. How do you start observing your users? How do you put yourself in their position?

Let's take a look at a few examples that illustrate IDEO's human-centered design process so you can apply it to your own team.

Example #1: Designing a Medical Device for Nurses

IDEO was asked by a medical device producer to design a device that nurses would use to enter data during a specific procedure. The client had a vision of a sleek, futuristic gadget that the nurses would hold with two hands during the operation.

But when the IDEO team watched the medical procedure take place, they noticed something that would make a two-handed device completely impossible.

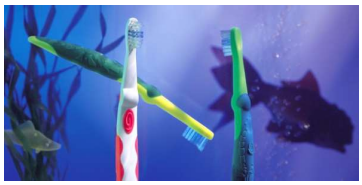
When patients were going into the operation they were really nervous and afraid. So the first thing that almost every nurse did was hold the patient's hand to comfort them—an obvious human element their client hadn't noticed.

IDEO went back to their office to brainstorm potential solutions, and they came up with a device that had a thumb scroll so nurses could do everything with one hand. That way they could input data and hold the patient's hand.
It wasn't as "cool" as the client initially imagined, but it was much more human and practical.

Instead of approaching the project with preconceived notions of what the solution needed to be, the IDEO team started by putting themselves in the position of the end-user.
Then they used that information to direct their ideas, and even though they ended up designing something that was different than what they initially expected, they created a much more human experience for everybody involved.

Example #2: Designing a Toothbrush for Kids
In 1996, Oral-B asked IDEO to design a new toothbrush for kids. And the first thing the IDEO team said was that they needed to watch kids brush their teeth.
As you can probably imagine, the Oral-B executives thought this was a strange request. You want to go into people's homes—into their bathrooms—and watch their kids brush their teeth? Everyone already knows how people brush their teeth, is that really necessary?
As strange as it sounds, that's exactly what they did. They needed to see how kids *actually* brush their teeth, and they didn't want to make any assumptions.

During their observations they noticed that the way kids hold their toothbrushes is totally different than adults.
Since adults have manual dexterity in their hands, they tend to use their fingers to manipulate the toothbrush with very fine movements. But kids just grab the toothbrush in their fist.
The problem with adult toothbrushes was that they were hard for kids to hold. Since they were so small, they just flopped around in the kids' hands and were difficult to use.
That one simple observation led to a totally new style of toothbrush: the squish gripper.
And it totally innovated the kids-toothbrush space.



If you go into any supermarket or corner store today you'll notice kids' toothbrushes have fat, squishy handles. That's the power of observing the behavior of your users and integrating it into your design process.

Example #3: Improving a Hospital's Patient Experience

IDEO was asked by a large healthcare system to describe what their patient experience was like, and to help them improve it.

So the IDEO team started by putting themselves in the position of the patient. They had one of their team members pretend to be a patient in the hospital, and they discovered something obvious, yet completely overlooked.

When they presented their findings to the hospital executives, they started by showing a 6-minute video clip of the ceiling in a patient's room. At first the executives were confused and didn't understand what they were watching. Then the IDEO team explained the purpose of the video.

The point was this: when you're a patient in the hospital you spend all day lying in a bed staring at the ceiling for a really long time—and it's a really bad experience.

Watching that video clip helped the executives catch what IDEO's Chief Creative Officer Paul Bennett calls "a blinding glimpse of the bloody obvious."

Looking at the patient experience from the point of view of the patient—instead of the organization—was a huge revelation to them, and they immediately took action. They realized that improving the patient experience wasn't about making massive changes to the system. Instead, it's about doing small things that make a big impact.

So IDEO started brainstorming ideas and prototyping, and they quickly implemented small four changes:

1. Decorated the ceilings to make them more aesthetically pleasing.
2. Covered one wall of each patient's room with whiteboards so visitors could write messages for the patient.
3. Made the floor of patient rooms a different style and color than the floor in the hallways of the hospital. This signified the transition from public space to private space, making patients feel like this was their own personal space.
4. Attached rear-view mirrors to hospital gurneys, so that when patients were wheeled around by a doctor or nurse they could actually see the person they were having a conversation with.

Conclusion

Seeing opportunities in the things you observe and creating solutions for them isn't a particularly new idea. There's a long history of inventions based around this method, for example:

- One Saturday morning, Joan Ganz Cooney walked downstairs and saw her daughter staring at the television, waiting for programs to come on. From that observation came **Sesame Street**.
- George de Mestral took his dog for a walk in a field, and when he got home his socks and shoes were covered in little prickly burrs. From that experience he invented **Velcro**.
- When Percy Shaw was driving home one night he saw a cat's eyes on the side of the road. After noticing that he invented the **reflective road studs** that you see on most highways and roads today.
- Malcolm McLean was moving from one country to another, and he noticed it was taking a really long time to load all of his stuff. From that observation came the **shipping container**.

There's a long history of innovative designers observing the world around them, seeing things with a fresh eye, and using that observation as an opportunity to create new possibilities. The common thread that ties all these stories together is a design process that starts with understanding the end-user of your product.

IDEO does this by observing the user, and putting themselves in the user's shoes. They know that if they can feel what people feel—what their experience is really like—then they can use that information to fuel their design solutions. And this process has turned them into one of the most influential and award-winning design firms in the United States.

To build a truly innovative and useful product, you don't need to start with the brightest idea or the fanciest technology. You just need to start by understanding people.

OpenID vs. OAuth

In this article, I want to show the differences between OpenID and its younger cousin OAuth by providing for each a typical user scenario.

First the scenario for OpenID:

- User wants to access his account on example.com
- example.com (the "Relying Party" in OpenID lingo) asks the user for his OpenID
- User enters his OpenID
- example.com redirects the user to his OpenID provider
- User authenticates himself to the OpenID provider
- OpenID provider redirects the user back to example.com
- example.com allows the user to access his account

And now the scenario for OAuth:

- User is on example.com and wants to import his contacts from mycontacts.com
- example.com (the "Consumer" in OAuth lingo) redirects the user to mycontacts.com (the "Service Provider")
- User authenticates himself to mycontacts.com (which can happen by using OpenID)
- mycontacts.com asks the user whether he wants to authorize example.com to access his contacts
- User makes his choice
- mycontacts.com redirects the user back to example.com
- example.com retrieves the contacts from mycontacts.com
- example.com informs the user that the import was successful

From those scenarios we can see that OpenID is about **authentication** (i.e. I can identify myself with an url) whereas OAuth is about **authorization** (i.e. I can grant permission to access my data on some website to another website, without providing this website the authentication information for the original website).

Easy Explanation: OpenID is about **authentication** (ie. proving who you are), OAuth is about **authorization** (ie. to grant access to functionality/data/etc.. without having to deal with the original authentication).
OAuth could be used in external partner sites to allow access to protected data without them having to re-authenticate a user.

WebID

WebID gives one way to log into an internet service. Instead of using a password, for example, the member refers to another web address which can vouch (translation: zemanat kardan) for it. WebID is not a specific service or product. Instead WebID is a suggested method for internet services and members to know who they are communicating with. Technically speaking, The WebID specifications define a set of proposed standards for Identity, identification and authentication on HTTP based networks.
A WebID is an HTTP URI that denotes ("refers to" or "names)" an agent on HTTP based networks e.g., the Web or an enterprise Intranet. In line with Linked Data principles, when you de-reference ("look up") a WebID, it resolves to a *profile document* that describes its referent (what it denotes). This profile document consists of RDF model based structured data, constructed initially using terms from the FOAF vocabulary, but now often including terms from other vocabularies.

WebID+TLS

The WebID+TLS protocol (formerly known as FOAF+SSL) is a decentralized and secure authentication protocol built upon the profile information as well as the Transport Layer Security (TLS)client certificates available in virtually all modern web browsers. It was first presented for the W3C Workshop on the Future of Social Networking in 2009.
Contrary to the usual SSL usage patterns, it does not require a dedicated Certificate authority to perform the user authorization. Users can easily mint useful identities for themselves using any TLS certificate (even self-signed ones). Using TLS client certificates for Web site user authentication doesn't usually require that the user input a password, unlike many other single sign-on mechanisms, which can make WebID+TLS quite convenient. However, the client certificate selection dialogues in popular Web browsers are not yet as user-friendly as they might be, negating some of this convenience.

FOAF

FOAF (an acronym of **friend of a friend**) is a machine-readable ontology describing persons, their activities and their relations to other people and objects. Anyone can use FOAF to describe themselves. FOAF allows groups of people to describe social networks without the need for a centralized database.
FOAF is a descriptive vocabulary expressed using the Resource Description Framework (RDF) and the Web Ontology Language (OWL). Computers may use these FOAF profiles to find, for example, all people living in Europe, or to list all people both you and a friend of yours know. This is accomplished by defining relationships between people. Each profile has a unique identifier (such as the person's e-mail addresses, international telephone number, Facebook account name, a Jabber ID, or a URI of the homepage or weblog of the person), which is used when defining these relationships.
FOAF is one of the key components of the WebID specifications, in particular for the WebID+TLS protocol, which was formerly known as FOAF+SSL.

Comments in Facebook

Settings to add

The code configuration above only uses a subset of all possible settings for your comments plug-in. You can also change the following settings.

Embedded Comments

1. Choose Comment Link

Pick the link of a comment you want to use with the embedded comments plugin. To get the link to a comments right-click the timestamp right next to a comment and copy the link address.

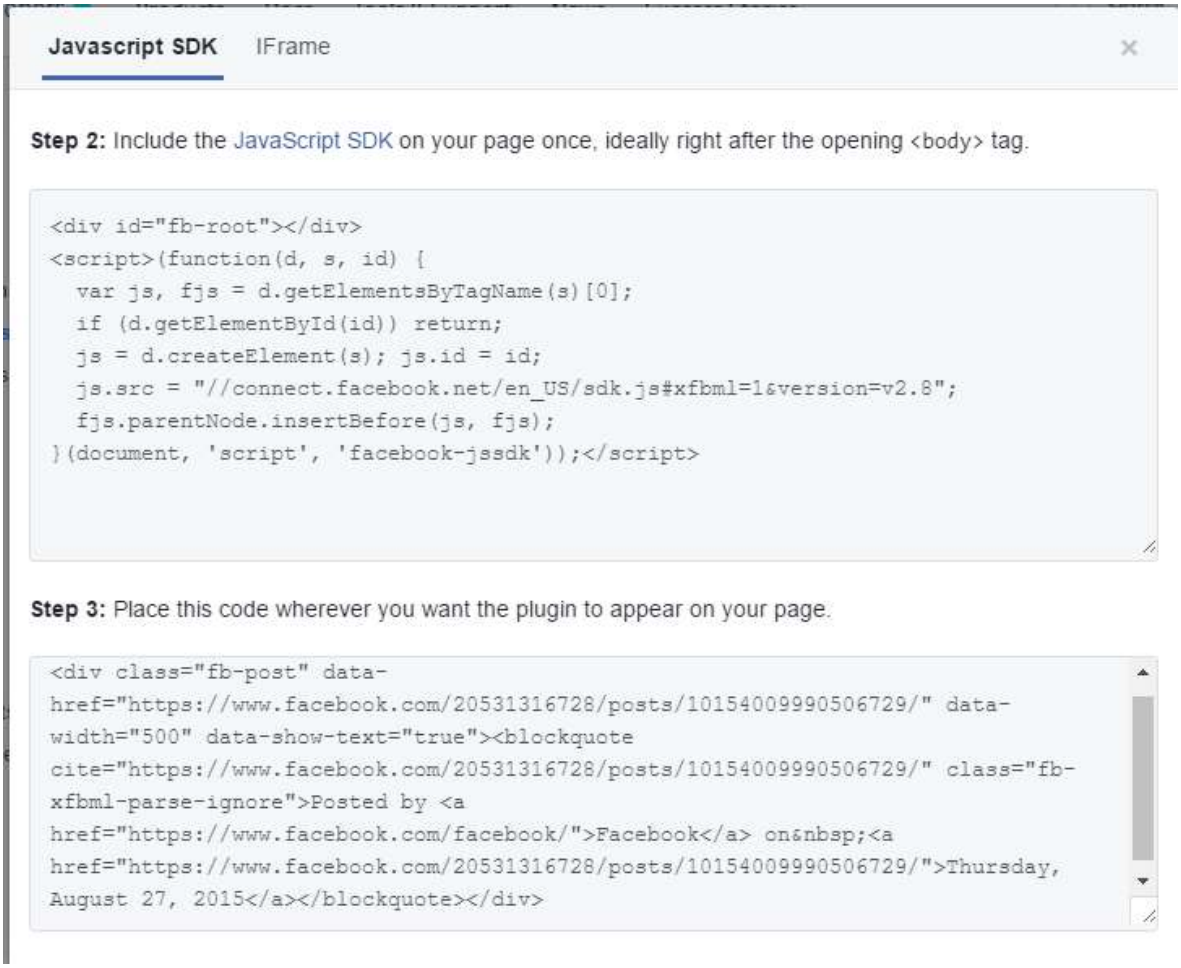
2. Update HTML snippet

Update the attribute data-href to the URL of your comment:

```
<!-- Load Facebook SDK for JavaScript -->
        <div id="fb-root"></div>
                <script>(function(d, s, id) {
                        var js, fjs = d.getElementsByTagName(s)[0];
                        if (d.getElementById(id)) return;
                        js = d.createElement(s); js.id = id;
                        js.src = "//connect.facebook.net/en_US/sdk.js#xfbml=1&version=v2.6";
                        fjs.parentNode.insertBefore(js, fjs);
                }(document, 'script', 'facebook-jssdk'));</script>
<!-- Your embedded comments code -->
        <div class="fb-comment-embed"
                  data-
        href="https://www.facebook.com/zuck/posts/10102735452532991?comment_id=1070233
        703036185"
          data-width="500"></div>
```

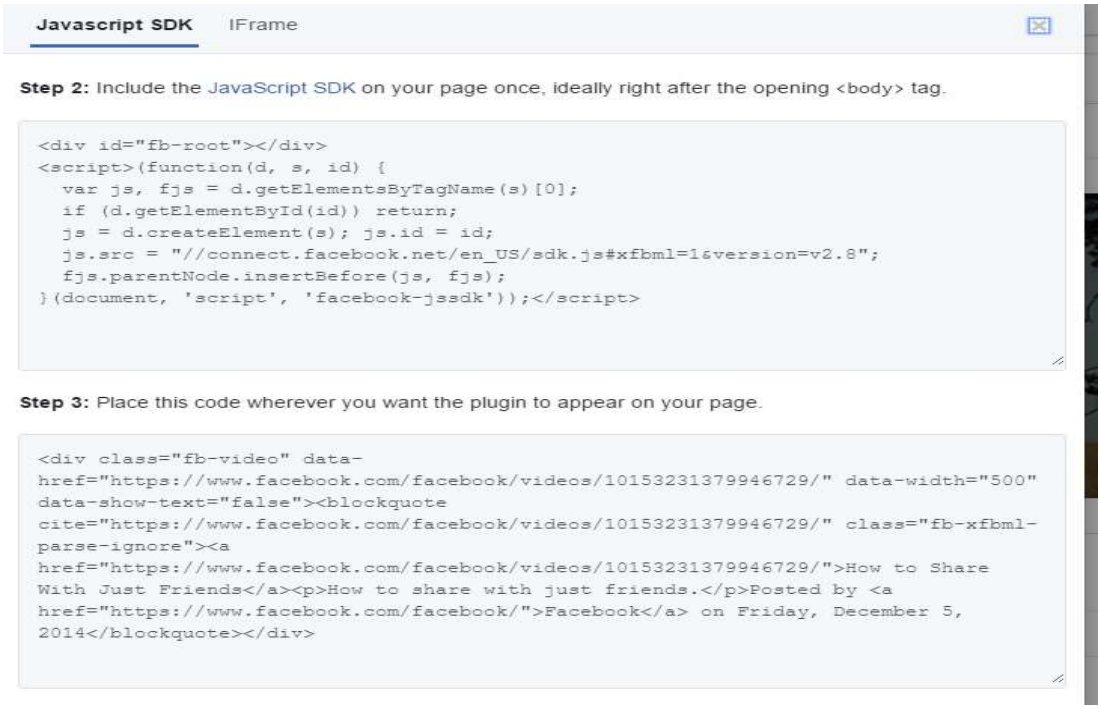
Embedded Posts

Embedded Posts are a simple way to put public posts - by a Page or a person on Facebook - into the content of your web site or web page. Only public posts from Facebook Pages and profiles can be embedded.



Embedded Video & Live Video Player

With the embedded video player you can easily add **Facebook videos** and **Facebook live videos** to your website. You can use any public video post by a Page or a person as video or live video source.



Follow Button

The Follow button lets people subscribe to the public updates of others on Facebook.

Like Button for the Web

A single click on the Like button will 'like' pieces of content on the web and share them on Facebook. You can also display a Share button next to the Like button to let people add a personal message and customize who they share with.

Javascript SDK | IFrame

Step 2: Include the JavaScript SDK on your page once, ideally right after the opening <body> tag.

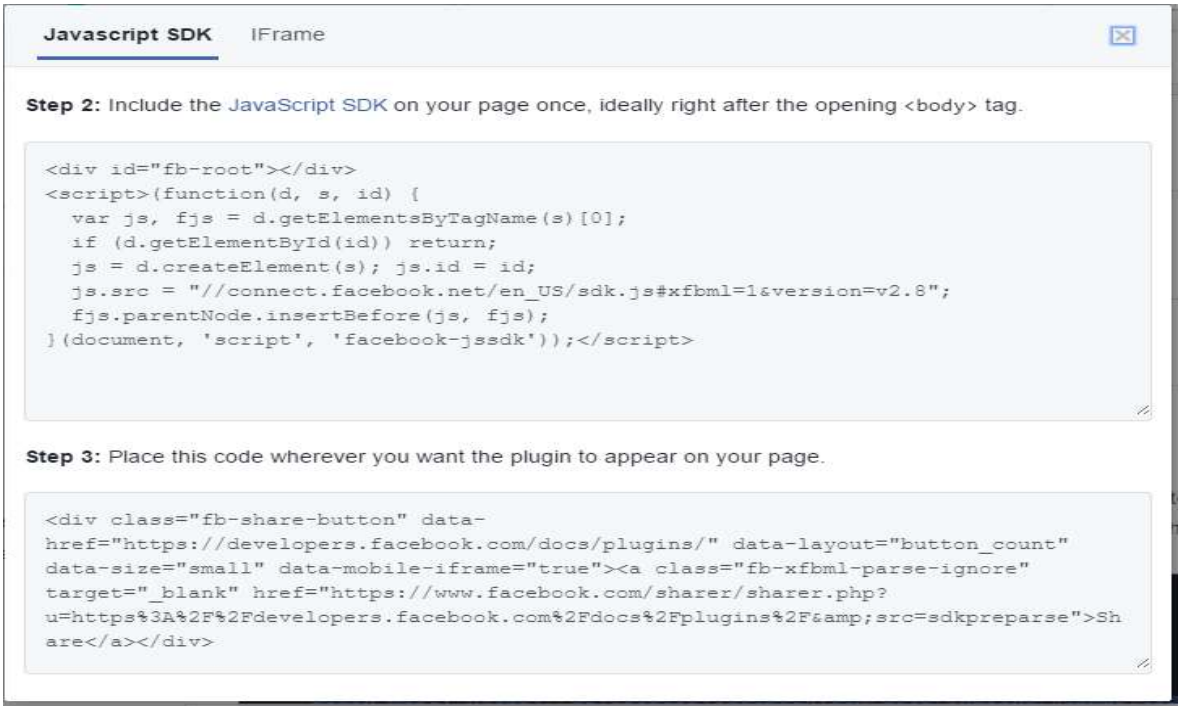
```
<div id="fb-root"></div>
<script>(function(d, s, id) {
  var js, fjs = d.getElementsByTagName(s)[0];
  if (d.getElementById(id)) return;
  js = d.createElement(s); js.id = id;
  js.src = "//connect.facebook.net/en_US/sdk.js#xfbml=1&version=v2.8";
  fjs.parentNode.insertBefore(js, fjs);
}(document, 'script', 'facebook-jssdk'));</script>
```

Step 3: Place this code wherever you want the plugin to appear on your page.

```
<div class="fb-like" data-href="https://developers.facebook.com/docs/plugins/"
data-layout="standard" data-action="like" data-size="small" data-show-faces="true"
data-share="true"></div>
```

Share Button

The Share button lets people add a personalized message to links before sharing on their timeline, in groups, or to their friends via a Facebook Message.



oEmbed Endpoints for Embeddable Facebook Content

oEmbed is an open format designed to allow embedding content from a website into another page. You can use the oEmbed standard for embedding Facebook posts and videos into your website.

Endpoint URLs

You can use our API endpoint to request the embed code for public **Posts** and **Videos**, all responses are in json format. Replace {content-url} by your post or video url:

Type	Endpoint URL
Post	https://www.facebook.com/plugins/**post**/oembed.json/?url=*{content-url}*
Video	https://www.facebook.com/plugins/**video**/oembed.json/?url=*{content-url}*

Content URLs

Public Facebook posts and videos can use one of these URL schemes:

Posts:

- `https://www.facebook.com/{page-name}/posts/{post-id}`
- `https://www.facebook.com/{username}/posts/{post-id}`
- `https://www.facebook.com/{username}/activity/{activity-id}`
- `https://www.facebook.com/photo.php?fbid={photo-id}`
- `https://www.facebook.com/photos/{photo-id}`
- `https://www.facebook.com/permalink.php?story_fbid={post-id}`
- `https://www.facebook.com/media/set?set={set-id}`
- `https://www.facebook.com/questions/{question-id}`
- `https://www.facebook.com/notes/{username}/{note-url}/{note-id}`

Videos:

- `https://www.facebook.com/{page-name}/videos/{video-id}/`
- `https://www.facebook.com/{username}/videos/{video-id}/`
- `https://www.facebook.com/video.php?id={video-id}`
- `https://www.facebook.com/video.php?v={video-id}`

Note: As our platform is constantly evolving this list may not be complete.

Example

Let's say you want to get the oEmbed data for embedding the Facebook Developers video How to Share With Just Friends call the endpoint

URL: https://www.facebook.com/plugins/video/oembed.json/?url=https%3A%2F%2Fwww.facebook.com%2Ffacebook%2Fvideos%2F10153231379946729%2F

The json response should like this:

```
{
  "author_name": "Facebook",
  "author_url": "https://www.facebook.com/facebook/",
  "provider_url": "https://www.facebook.com",
  "provider_name": "Facebook",
```

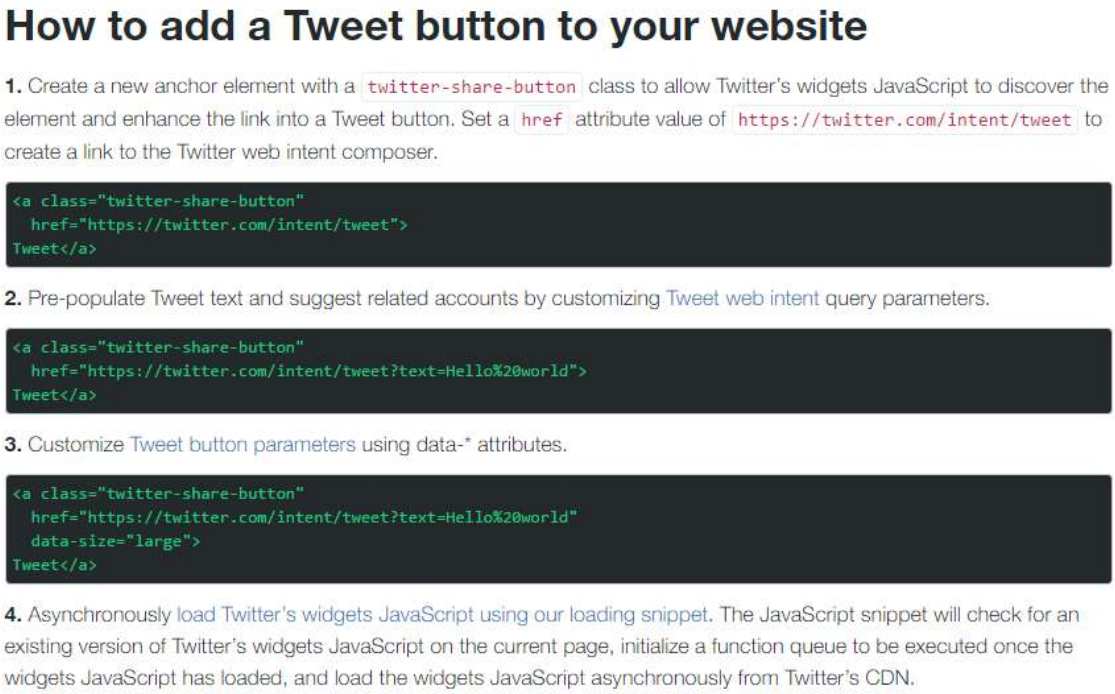
```
  "success": true,
  "height": null,
  "html": "<div id=\"fb-root\"></div>\n<script>(function(d, s, id)
{\n  var js, fjs = d.getElementsByTagName(s)[0];\n  if
(d.getElementById(id)) return;\n  js = d.createElement(s); js.id =
id;\n  js.src =
\"//connect.facebook.net/en_US/sdk.js#xfbml=1&amp;version=v2.5\";\n
fjs.parentNode.insertBefore(js, fjs);\n}(document, 'script',
'facebook-jssdk'));</script><div class=\"fb-video\" data-
href=\"https://www.facebook.com/facebook/videos/10153231379946729/\"
><div class=\"fb-xfbml-parse-ignore\"><blockquote
cite=\"https://www.facebook.com/facebook/videos/10153231379946729/\"
><a
href=\"https://www.facebook.com/facebook/videos/10153231379946729/\"
>How to Share With Just Friends</a><p>How to share with just
friends.</p>Posted by <a
href=\"https://www.facebook.com/facebook/\">Facebook</a> on Friday,
December 5, 2014</blockquote></div></div>",
  "type": "video",
  "version": "1.0",
  "url":
"https://www.facebook.com/facebook/videos/10153231379946729/",
  "width": "100%"
}
```


Parameters

All parameters need to be sent URL-encoded.

Parameter	Description
url	The URL of the post or video (required)
maxwidth	The maximum width of the embedded resource (optional). Note that the maxheight parameter is not supported. This is because the embed code is responsive and its height varies depending on its width.
callback	A JSON callback to be invoked (optional)
omitscript	If set to true, the embed code does not include the script tag (optional)

How to add a Tweet button to your website



How to add a Tweet button to your website

1. Create a new anchor element with a `twitter-share-button` class to allow Twitter's widgets JavaScript to discover the element and enhance the link into a Tweet button. Set a `href` attribute value of `https://twitter.com/intent/tweet` to create a link to the Twitter web intent composer.

```
<a class="twitter-share-button"
  href="https://twitter.com/intent/tweet">
Tweet</a>
```

2. Pre-populate Tweet text and suggest related accounts by customizing Tweet web intent query parameters.

```
<a class="twitter-share-button"
  href="https://twitter.com/intent/tweet?text=Hello%20world">
Tweet</a>
```

3. Customize Tweet button parameters using data-* attributes.

```
<a class="twitter-share-button"
  href="https://twitter.com/intent/tweet?text=Hello%20world"
  data-size="large">
Tweet</a>
```

4. Asynchronously load Twitter's widgets JavaScript using our loading snippet. The JavaScript snippet will check for an existing version of Twitter's widgets JavaScript on the current page, initialize a function queue to be executed once the widgets JavaScript has loaded, and load the widgets JavaScript asynchronously from Twitter's CDN.

How to add a Follow button to your website

1. Create a new anchor element with a twitter-follow-button class to allow Twitter's widgets JavaScript to discover the element and enhance the link into a Follow button. Set a href attribute value of a Twitter profile URL.

```
<a class="twitter-follow-button"
  href="https://twitter.com/TwitterDev">
Follow @TwitterDev</a>
```

2. Customize Follow button parameters using data-* attributes.

```
<a class="twitter-follow-button"
  href="https://twitter.com/TwitterDev"
  data-size="large">
Follow @TwitterDev</a>
```

3. Asynchronously load Twitter's widgets JavaScript using our loading snippet. The JavaScript snippet will check for an existing version of Twitter's widgets JavaScript on the current page, initialize a function queue to be executed once the widgets JavaScript has loaded, and load the widgets JavaScript asynchronously from Twitter's CDN.

Current Trends MCQ's:-

Scrum Questions:-

1. What is the recommended size of a scrum team?

[3 – 9] or [7 Plus or Minus 2] or [6 Plus or Minus 3] ----Max is 9

2. Who is required to attend the Daily Scrum?

The Development Team

3. Scrum Master is a "management" position? True

4. What is the role of Management in Scrum?

Management supports the Product Owner with insights and information into high value product and system capabilities. Management supports the Scrum Master to cause organizational change that fosters empiricism, self-organization, bottom-up intelligence, and intelligent release of software.

5. Which statement best describes Scrum?

A framework with built-in reality checks for complex work in uncertain domains

6. Does Scrum have any rules or just guidelines? Few Rules

7. Does scrum have a role called “project manager”? NO

8. What is the Scrum Development Team expected to do during the first sprint?

Build a thin slice of potentially ship-able functionality

Test the product

9. Which is the time-box for daily Scrum meeting? 15 Min

10. Which of the following is the scrum team NOT responsible for? Selecting the product owner

11. Which of the following is the team responsible for?

Coordinating daily during the sprint to meet the sprint goal

Resolving internal conflicts

Increasing productivity and learning

Planning how to meet the Sprint goal

12. How frequently do you test in the Scrum model?

Every time the code changes

13. Why is the Daily Scrum held at the same time and same place?

The consistency reduces complexity and overhead

14. Test Driven Development (TDD) involves creating tests and code almost simultaneously, while constantly improving the design.
Many Agile developers believe TDD helps ensure correct implementation while reducing the cost of change. Is TDD part of Scrum?

No - Scrum is only a feedback framework. It does not specify particular technical practices

15. Which of the following are explicitly defined questions in the daily Scrum meeting?

What did I do yesterday (or since last scrum meeting?)

What impedes me (blocks my progress)

What will I do today (or before the next scrum meeting)

16. Which is not an effective way to encourage collaboration between the scrum team and external departments or other scrum teams?

Act as a go-between for them

17. Most organizations that are doing Scrum

Have modified the difficult, uncomfortable parts that could have led to breakthroughs

18. Which technique is least effective in encouraging collaboration between the Scrum Team and the Product Owner?

Act as a go-between for them.

19. During the Daily Scrum, the Scrum Master's role is to:

Teach the Development Team to keep the Daily Scrum within the 15 minute time box.

Product Backlog:-

1. Should the product backlog contain tasks? NO

2. How is Product Backlog Arranged?

Most important items at the top, least important items at the bottom

3. How often should backlog grooming occur?

Every Sprint

4. Who creates a Product Backlog item's effort estimate?

The scrum development team, after clarifying the requirement

5. When should product backlog be re-prioritized?

Always, the product owner should re-prioritize the backlog constantly as we learn more

6. What happens to the Product Backlog as development continues from Sprint to Sprint?

It gets larger as the Sprint Review demonstration prompts requests for more or different features

7. Which is the more important reason to demonstrate working products frequently?

To accelerate our understanding of the user's real need

8. Which statement best describes a Product Owner's responsibility?

Optimizing the value of the work the Development Team does

Sprint:-

1. The purpose of a Sprint is to have a working increment of product done before the Sprint Review.

True

2. What is a good size for a sprint task?

One person per day or less, so other team members can easily detect when a task is stuck

3. Who owns sprint commitments?

The team owns them collectively

4. During sprint execution, a Scrum team uses "information radiators" such as the task board or sometime a sprint burn-down chart. Who are these for?

The team, so they can take responsibility for their own work habits

5. Which is the more important reason to demonstrate the working products frequently?

To accelerate our understanding of the user's needs

6. During Sprint Execution, when are new tasks added?

As soon as possible after they are identified, unless they reflect a scope change in sprint goals, or committed Product Backlog items

7. When is sprint execution completed?

When the Time box expires

8. The CEO asks a team member to do some work outside the goals of the current Sprint in progress. What should the team member do?

Inform the Product Owner so he/she can work with the CEO

9. When do we hold a retrospective meeting?

At the end of each sprint, after the sprint review meeting

10. When is the sprint backlog created?

During the sprint planning meeting

11. What is code refactoring?

Improving internal structure only, e.g. removing duplicate code

12. In an organization that embraces Agile values, who would be responsible for tool selection and configuration?

The teams, who would have to coordinate with each other

13. Who estimates the effort to complete a product backlog item?

The scrum development team, after clarifying the requirement

14. Many people feel pair programming reduces errors and increases maintainability. What is pair programming?

Two people share one workstation, typically taking turns typing while the other pays attention and helps

15. When should a retrospective meeting be held?

At the end of each sprint, after the sprint review meeting

16. How much work must a Development Team do to a Product Backlog item it selects for a Sprint?

As much as it has told the Product Owner will be done for every Product Backlog item it selects in conformance with the definition of done.

17. What does it mean to say that an event has a time box?

The event can take no more than a maximum amount of time

18. The time box for the complete Sprint Planning meeting is?

8 hours for a monthly Sprint. For shorter Sprints it is usually shorter.

19. The three pillars of empirical process control are:

Inspection, Transparency, Adaptation

20. During a Sprint, a Development Team determines that it will not be able to finish the complete forecast. Who should be present to review and adjust the Sprint work selected?

The Product Owner and the Development Team

21. Development Team membership should change:

As needed, while taking into account a short term reduction in productivity

22. An abnormal termination of a Sprint is called when?

When the Product Owner determines that it makes no sense to finish it

23. When does the next Sprint begin?

Immediately after the conclusion of the previous Sprint

24. Which statement best describes the Sprint Review?

It is when the Scrum Team and stakeholders inspect the outcome of the Sprint and figure out what to do in the upcoming Sprint.

25. Upon what type of process control is Scrum based?

Empirical

26. When multiple teams are working together, each team should maintain a separate Product Backlog.

False: Products have one Product Backlog, regardless of how many teams are used. Any other setup makes it difficult for the Development Team to determine what it should work on.

27. What is the primary way a Scrum Master keeps a Development Team working at its highest level of productivity?

By facilitating Development Team decisions and removing impediments.

28. When many Development Teams are working on a single product, what best describes the definition of "done?"

All Development Teams must have a definition of "done" that makes their combined work potentially releasable.

Agile Quiz Questions:-

Q #1) which of the following is delivered at the end of the Sprint?

An increment of done software

Reasoning

The output of every Sprint is an Increment of a Done Software which can be shipped off to the end user for usage. An item is only marked done if it matches the definition of done.

Q #2) Product Backlog should be ordered on the basis of?

Value of the items being delivered

Reasoning

Product Backlog is ordered on the basis of the value they provide to the business.

The value may be influenced by several other factors like risk, complexity, and criticality but are not the direct basis for calculating the Value. The value of the item being delivered is calculated by the Product Owner and he is the one who is responsible for ordering the Product Backlog.

Q #3) In an Agile environment, what is the main responsibility of a tester?

There is no role as a Tester in Scrum

Reasoning

In a Scrum Team, there are only three roles: Scrum Master, Product Owner, and the Development Team. No other role is allowed and there is no exception to this rule.

One of the Development Team's member may be more inclined towards testing and has Tested as the area of expertise but he would still be called a Developer.

Q #4) When is a Sprint Retrospective ceremony performed?

At the end of each Sprint

Reasoning

In Scrum, it is mandatory to conduct all the Scrum ceremonies including Sprint Retrospective.

Sprint Retrospective is a meeting where all the team members sit and retrospect from their current sprint and lay out the action items to improvise for the upcoming sprints. For the very same reason, Sprint Retrospective is conducted at the end of each Sprint.

Q #5) When can a Sprint be canceled?

Whenever the Product Owner says

Reasoning

The power to cancel the Sprint lies only with the Product Owner. He/She can call to cancel an ongoing Sprint when the Sprint Items are no longer required by the business i.e. the items have become obsolete.

Q #6) What should a Development Team do during a Sprint Planning meeting when they have realized that they have selected more than the items they can complete in a Sprint?

Inform the Product Owner

Take a call to remove some of the Sprint Backlog Items

Reasoning

As we are still in the Sprint Planning meeting i.e. haven't started the Sprint yet, the developers are free to make changes to the Sprint Backlog items. They can choose to remove some of the items which they think that cannot be completed with the current Development Team's capacity.

Note that addition or removal should always be done in consensus with the Product Owner as he is the one who decides on the Priority of these items. The removal is not allowed once the Sprint has started.

Q #7) Who is responsible to measure the Project's performance?

The Product Owner

Reasoning

Being the customer's voice, it is the Product Owner's responsibility to measure the Project's and Release performance and sees if the team is on track to complete the project on time.

Q #8) What are the main responsibilities of a self-organizing development team?

Develop the Sprint Backlog items

Estimate the items to be picked up for the upcoming Sprint

Tasking the current Sprint Items

Reasoning

The main responsibility of a self-organizing team is to estimate the product backlog items (also known as story pointing exercise), pull them from the top of the Product Backlog, and break them down into multiple tasks that can be assigned to the individuals in a team and finally developing them.

Q #9) What does a BurnDown Chart display?

Amount of remaining work with respect to time

Reasoning

A burndown chart represents the amount of remaining work with respect to the time.

The horizontal axis represents time whereas the vertical axis represents the amount of work remaining. The burndown chart is one of the several metrics that is used in Scrum to project the completion date of the project given the product backlog, team's capacity and team's velocity remains the same.

Q #10) What are the main responsibilities of a Scrum Master?

Removing Impediments

Facilitating meeting as and when requested

Consulting the Development Team and Product Owner

Reasoning

Scrum Master is the person who is responsible for facilitating/coaching the Development Team and the Product Owner to work on the day to day development activities. He is the one who ensures that the team understands the Scrum Values and Principles and is able to practice them.

At the same time, Scrum Master also assures that the Team feels enthusiastic about Agile in order to achieve the best out of the framework. Scrum Master also helps and supports the team to become self-organized and removes impediment for them.

Q #11) In Scrum, when is a Sprint Over?

When the time box expires

Reasoning

All the Sprint activities are time boxed including Sprint. Unlike other Sprint activities, Sprint can neither be extended nor shortened.

If for instance, all the items of a Sprint are not completed, the Sprint is still marked over and the remaining item(s) is moved to the Product Backlog from where it can be scheduled to any of the subsequent sprint based on the revised priority. Similarly, the Sprint can never be shortened.

If all the Sprint items are completed before time, the development team is free to pull in the top Product Backlog items and start the development.

Q #12) What is the significance of determining a Definition of Done?

Increases Transparency

Increments delivered are more effective and potentially releasable

Develops a common understanding amongst all the team members as to what all needs to be completed to mark every item complete

Reasoning

The ideology behind creating a Definition of Done is to have a set of checklist which is common to all the Sprint Items and determines everything that needs to be done in order to complete a backlog item.

Having a Definition of Done will build a common understanding amongst everyone in the team as to what all needs to be done. It will allow everyone to understand what it means when a Development Team says something is complete. That is the kind of transparency the Definition of Done brings in.

The Definition of done also serves the purpose in a sense that the Development can now think and plan better as they know what is expected from a particular work item.

Q #13) What is done during a Sprint Review Meeting?

Demo of the Increment

Present the Project's performance to the Stakeholders

Reasoning

The Sprint Review Meeting is conducted to demonstrate the Sprint Increment to the Stakeholders and the Customers. Another very important task in the Sprint Review Meeting is to demonstrate the Project's performance to the Stakeholders.

The Development Team is responsible to demonstrate the Increment whereas the Product Owner is responsible to demonstrate the Project's performance. The stakeholders and the customers are open to provide feedback which is then incorporated by the team.

Q #14) What is a Sprint Review?

Activity to Introspect and Adapt

Reasoning

Sprint Planning, Daily Scrum, Sprint Review and Sprint Retrospective all the four ceremonies in Scrum are opportunities for inspection and adaptation. During a Sprint Review, the idea is to inspect and seek feedback from the stakeholders and adapt them.

Q #15) What do we mean by a cross-functional Development Team?

The Development Team should have all the skills necessary to deliver the Done Increment

Reasoning

Cross-Functional Scrum Teams are the teams having all the necessary skills and proficiency within the team to accomplish their work. These teams do not rely on anyone outside the team for completing the work items.

Thus, the Scrum Team is a very creative amalgamation of different skills required to complete the entire work item. Each team member may not necessarily have all the skills required to build the product but is competent in his/her area of expertise.

Having said that, the team member need not be cross-functional but the team as a whole has to be.

Q #16) Who should necessarily attend the Daily Standup meeting?

The Development Team

Reasoning

The Development Team is necessarily required to attend the Daily Standup meeting every day. Anyone else who wishes to attend the meeting is very much welcome but it is not mandatory to attend it.
Other than the Development Team, whoever is attending the meeting is not allowed to give updates or participate. He can enjoy listening while others are participating. The Scrum Master though can attend the meeting and also facilitate it if he has been requested for the same by the Development Team.
Even the stakeholders can attend the Daily Standup meetings.

Q #17) What happens when all the Sprint Items cannot be completed?

The Sprint ends with the done items

Reasoning

In a case where the team is unable to complete all the Sprint Backlog items, nothing happens. The Sprint ends on the stipulated date with the completed items. The Development Team demonstrates the completed items in the Sprint Review meeting.

The uncompleted items are moved back to the Product Backlog and are again prioritized from there.

Q #18) What should be the size of the Development Team?

6 +- 3

Reasoning

The ideal and recommended development team size should be 6+-3. Development Team size should be chosen very wisely as it can directly hamper the productivity of the team thereby impacting the product delivery.

The Development Team should not be very large as it might require a lot of coordination amongst the team members. However, for a very small team, it would be very difficult to have all the skills required to deliver an Increment. Thus, an optimal number should be chosen for the Development Team Size.

Q #19) What activities are a part of Product Backlog Refinement?

Estimate the Product Backlog Items

The ordering of the Product Backlog Items

Brainstorming on the Product Backlog Items

Reasoning

Product Backlog Refinement is an activity where the entire team sits together and brainstorm around the backlog items. The backlog items are refined and the details are added to them.

During the meeting, the Product Backlog items are ordered based on their priority. Once the Product Backlog items have been refined, the Development Team members estimate the Product Backlog Items.

Q #20) Which of the following activity is not timeboxed?

Sprint Retrospective
Sprint
Product Backlog Refinement
Daily Scrum
Sprint Review

Reasoning

In Scrum, all the ceremonies are time boxed i.e. they cannot be extended. Except for Sprint, others can neither be shortened. Product Backlog Refinement is one such meeting that is not time boxed rather is a continuous process and can be conducted whenever the team wants.

Note that the team shouldn't spend too much of their time in Backlog Refinement Meeting.

SOLID:-

Steps To Develop App in Solid:-

Step 0: Get yourself a Solid pod

Step 1: Set up a basic HTML page

Step 2: Add jQuery

Step 3: Add login status UI elements

Step 4: Add the Solid auth client

Step 5: Add a login button

Step 6: Add a logout button

Step 7: Add an input element for the profile's WebID

Step 8: Add RDFlib.js

Step 9: Show the user's name

Step 10: Show the user's friends

Step 11: Make the friends clickable