when will you use a workflow and when will you use a plug-in? give some real-life scenario.

Plugins or custom workflows are necessary when you need to extend the platform or change its behavior.

Let's say for example that you have an external website that creates contacts directly inside CRM using the web services, the details collected are the name and the address.

Let's assume you want to do an automatic cleanup of the zip code removing spaces and dashes, because the users enter the zip code like "730 59" or "401-34" and you want them inside crm as 73059 and 40134.

In this case you can create a plugin that will be triggered on the create event that will look at the zip code field and remove the unwanted characters, or you can set up a workflow that will be triggered after a contact is created, but because the standard workflow steps have not a replace functionality, you can write a custom worfklow activity that will take a string as input and make it cleaner as output.

Try creating a plugin on the account which updates a value on all the contacts associated with that account.

or try creating an expense entity adding lots of expense records and summing this up on an account field.

* **When Workflow Should be Proffered:**

1. If company wants to send alerts, emails then workflows should be preferred i.e. on Opportunity closing the email notification alert should be sent to Sales Manager then you can create a new workflow on Opportunity Status Change and if it is changed to Won then you can create an email message with opportunity details and can send via workflow

2. If an asynchronous integration is required to be done with the system i.e. SMS gateway integration on new customer service case creation a case number should be sent to the customer so in this a workflow can be created which will call the custom workflow activity to send SMS with the required details to the customer. This action will be done on record creation asynchronously

**When Plugin should be preferred:**

1. When business logic is required to be execute immediately after some action happened on entity records, i.e. Entity record created, updated, deleted, sharing, assignment etc. i.e. calculate sales order tax, a tax functionality is not available into the CRM invoices so if we want to calculate tax on sales orders because whenever a new sales order record or amount will be changed then sales order tax business logic will be executed immediately and calculate the tax and update the total amount

2.Data validations, if custom data validations are required to be performed then always a plugin should be preferred because in plugin the execution of the action can be aborted and exception can be thrown to the user. i.e. if you are extending the customer order functionality and only issue sale order to those customers who have credit value under minimum limit then you can develop a plugin and register its step on Sales Order Record creation to check if customer has valid credit limit then only allow to create sales order else throw error exception

Plugin overall execution time is lesser then workflows and if validations are required to be performed then plugins should be preffered