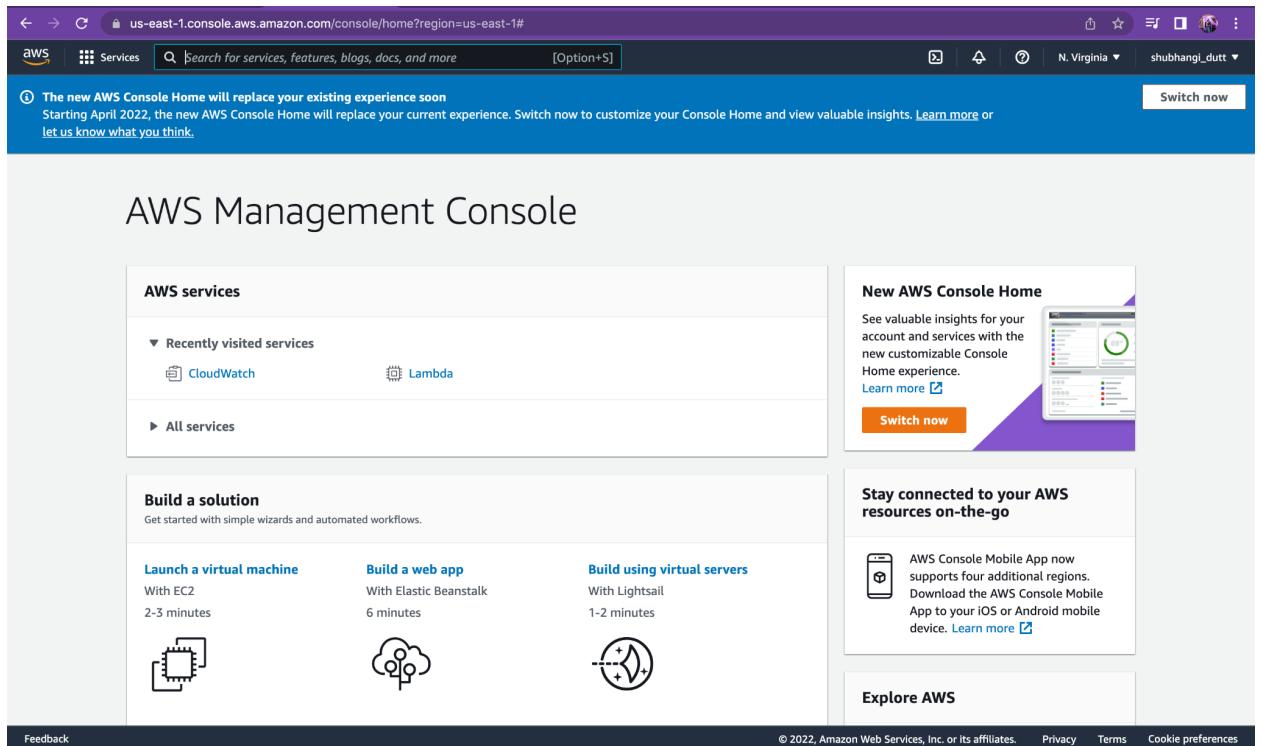


CS- 524 Introduction to Cloud Computing Final Project

PART A: AWS Creating a simple microservices architecture.

Step1) I logged into AWS console



The screenshot shows the AWS Management Console homepage. At the top, there is a banner indicating that the new AWS Console Home will replace the existing experience soon, starting April 2022. It includes a "Switch now" button. Below the banner, the title "AWS Management Console" is displayed. On the left, a sidebar titled "AWS services" lists "Recently visited services" (CloudWatch, Lambda) and a link to "All services". The main content area features three sections: "Build a solution" (with links to "Launch a virtual machine", "Build a web app", and "Build using virtual servers"), "Stay connected to your AWS resources on-the-go" (with a link to the "AWS Console Mobile App"), and "Explore AWS". The bottom of the page includes standard footer links for "Feedback", "© 2022, Amazon Web Services, Inc. or its affiliates.", "Privacy", "Terms", and "Cookie preferences".

Step 2) I searched for Lambda function in the search box and selected it from the drop down list.

The screenshot shows the AWS search results page with the search term 'lambda' entered in the search bar. The results are categorized under 'Services' (5), 'Features' (2), and 'Blogs' (829). The 'Lambda' service is highlighted in the 'Services' section, described as 'Run Code without Thinking about Servers'. Other services listed include CodeBuild, AWS Signer, and Amazon Lex. The 'Features' section includes Local processing and Target groups. The 'Blogs' section has 829 results. The top right corner shows the user's name 'shubhangi_dutt' and the region 'N. Virginia'.

Step 3) I selected the 'Create Function' option.

The screenshot shows the AWS Lambda Functions page. The left sidebar shows navigation options like Dashboard, Applications, and Functions. Under 'Additional resources', there are links for Code signing configurations, Layers, and Replicas. Under 'Related AWS resources', there is a link for Step Functions state machines. The main content area shows a table titled 'Functions (0)' with columns for Function name, Description, Package type, Runtime, Code size, and Last modified. A message at the bottom states 'There is no data to display.' At the top right of the main area, there is a prominent orange 'Create function' button. The top navigation bar shows the URL 'us-east-1.console.aws.amazon.com/lambda/home?region=us-east-1#/functions' and the user information 'shubhangi_dutt'.

Step 4) I selected the following configurations for the lambda function:-

- ‘Author from Scratch’ to create the function

- Function name- ‘Avengers’
- Runtime -Node js 14x
- Architecture- x86_64
- Permissions- ‘Create a new role from AWS policy’
- Role-’GetStartedLambdaProxyIntegration’

The screenshot shows the 'Create function' wizard on the AWS Lambda console. The top navigation bar includes the AWS logo, a search bar, and account information for 'N. Virginia' and 'shubhangi_dutt'. The main title is 'Create function' with an 'Info' link. Below it, a sub-header says 'Choose one of the following options to create your function.' Four options are listed in boxes:

- Author from scratch** (selected): Start with a simple Hello World example.
- Use a blueprint**: Build a Lambda application from sample code and configuration presets for common use cases.
- Container image**: Select a container image to deploy for your function.
- Browse serverless app repository**: Deploy a sample Lambda application from the AWS Serverless Application Repository.

The 'Basic information' section contains fields for:
- **Function name**: 'Avengers'
- **Runtime**: 'Node.js 14.x'
- **Architecture**: 'x86_64' (selected)
- **Permissions**: 'Info' link

At the bottom, there are links for 'Feedback', '© 2022, Amazon Web Services, Inc. or its affiliates.', 'Privacy', 'Terms', and 'Cookie preferences'.

The screenshot shows the 'Create function' wizard on the AWS Lambda console. Step 5 is titled 'Role configuration'. It includes sections for 'Runtime', 'Architecture', and 'Permissions'. Under 'Permissions', there's a note about role creation taking a few minutes. The 'Role name' field is set to 'GetStartedLambdaProxyIntegration'. The 'Policy templates - optional' section is empty. At the bottom, there's an 'Advanced settings' section with several optional checkboxes: 'Enable Code signing', 'Enable function URL - new', 'Enable VPC', and 'Enable tags'. The 'Create function' button is visible at the bottom right.

Step 5) I then selected the ‘Create function’ option.

The screenshot shows the 'Create function' wizard on the AWS Lambda console. Step 7 is titled 'Review and Create'. It displays the summary of the function configuration, including the role name 'GetStartedLambdaProxyIntegration' and the optional settings like 'Enable Code signing', 'Enable function URL - new', 'Enable VPC', and 'Enable tags'. The 'Create function' button is highlighted in orange at the bottom right.

Step 7) I successfully created the lambda function

Step 8) I created the json file index.js with the given source code and deployed the function.

The screenshot shows the AWS Lambda console interface. At the top, a green banner indicates: "Successfully created the function Avengers. You can now change its code and configuration. To invoke your function with a test event, choose 'Test'." Below this, the "Avengers" function is listed under the "Functions" section. The "Code" tab is selected. In the "Code source" section, there is a file tree with "index.js" selected. The code editor shows the following JavaScript code:

```
1 var json = { "service": 
2   "lambda",
3   "reference": "https://aws.amazon.com/lambda/avengers/", "questions": [
4     { "q": "What is the real name of the Scarlet Witch?", 
5       "a": "Wanda Maximoff" },
6     { "q": "Which film did The Aether first appear in?", 
7       "a": "Thor: The Dark World" },
8     { "q": "Which of the infinity stones is hidden on Vormir?", 
9       "a": "Soul Stone" },
10    { "q": "What is Captain America's shield made of?", 
11      "a": "Vibranium" }]
```

The right side of the screen displays the function's details: Description (empty), Last modified (34 seconds ago), Function ARN (arn:aws:lambda:us-east-1:242462712086:function:Avengers), and Function URL (Info).

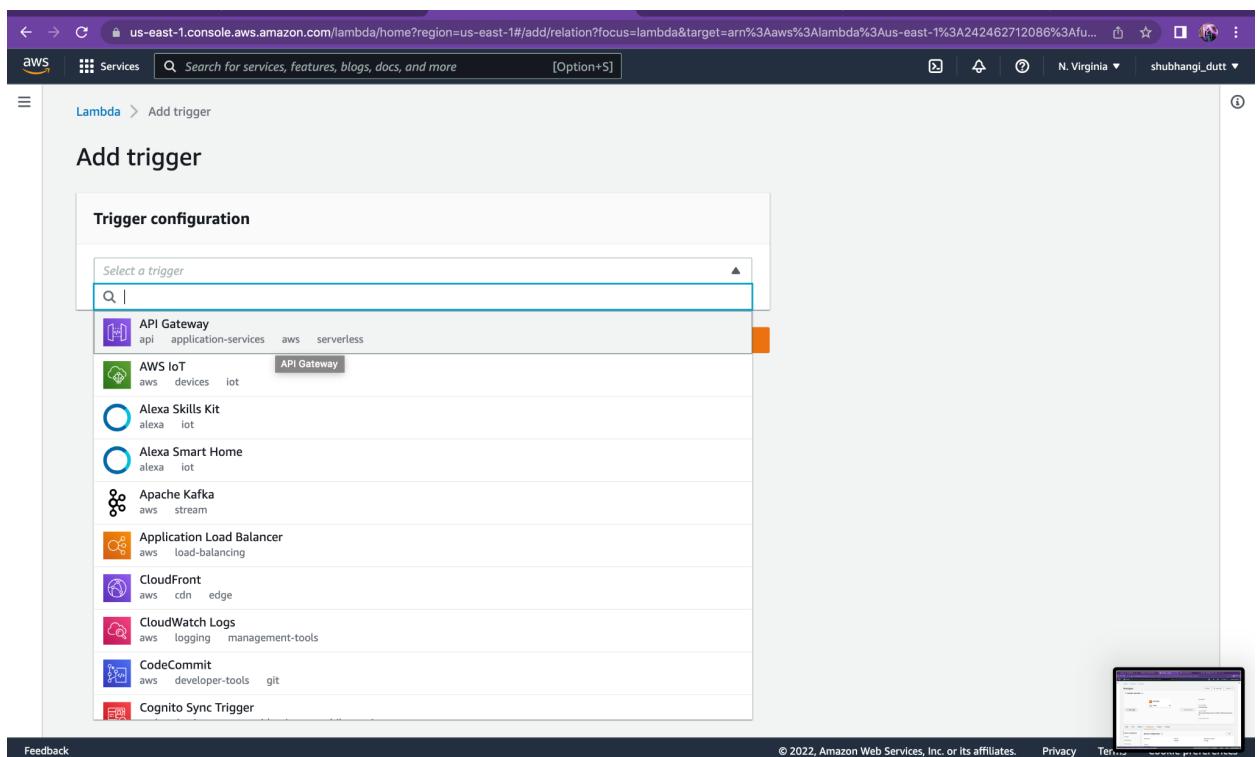
```
1 var json = { "service":  
2   "name": "Avengers",  
3   "reference": "https://aws.amazon.com/lambda/avengers/", "questions": [ {  
4     "q": "What is the real name of the Scarlet Witch?",  
5     "a": "Wanda Maximoff" }, {  
6     "q": "Which film did the Aether first appear in?",  
7     "a": "Thor: The Dark World" }, {  
8     "q": "Which of the infinity stones is hidden on Vormir?",  
9     "a": "Soul Stone" }, {  
10    "q": "What is Captain America's shield made of?",  
11    "a": "Vibranium" }, {  
12    "q": "Which country is Black Panther next in line to be king of?",  
13    "a": "Wakanda" }, {  
14    "q": "What is the real name of Black Widow?",  
15    "a": "Natasha Romanoff" }, {  
16    "q": "What is the name of the axe created for and then used by Thor in Avengers: Infinity War?",  
17    "a": "Stormbreaker" }, {  
18    "q": "What is Loki's title?",  
19    "a": "God of Mischief" }, {  
20    "q": "What is the name of the organisation which is revealed to have infiltrated S.H.I.E.L.D. in Captain America: The Winter Soldier?",  
21    "a": "Hydra" }, {  
22    "q": "What nickname does Captain America know the Winter Solider as?", "a": "Bucky"  
23  } ],  
24  "r": "What food do the Avengers go to eat after the Battle of New York in the first Avengers film at Tony Stark's suggestion?",  
25  "a": "Shawarma" }, {  
26  "r": "What type of radiation caused Bruce Banner to become the Hulk?",  
27  "a": "Gamma rays" }, {  
28  "r": "What is the name of the treaty the Avengers are asked to sign which divide the Avengers, bringing us to Captain America: Civil War?",  
29  "a": "The Sokovia Accords" }, {  
30  "r": "Who has directed the most MCU movies?",  
31  "a": "The Russo Brothers" }  
32 ] }  
33 avengers.handler = function(event, context) {
```

20:105 JavaScript Spaces: 4

Step 10) I selected the ‘Add trigger’ button on order to create a gateway API

The screenshot shows the AWS Lambda console interface. The top navigation bar includes the AWS logo, a search bar with placeholder text "Search for services, features, blogs, docs, and more", and a "Services" dropdown. The region is set to "N. Virginia". The URL in the address bar is "us-east-1.console.aws.amazon.com/lambda/home?region=us-east-1#/functions/Avengers?newFunction=true&tab=configure". The main content area displays the "Avengers" function details. On the left, there's a sidebar with "Lambda > Functions > Avengers". The main panel has tabs for "Function overview" (selected), "Code", "Test", "Monitor", "Configuration" (highlighted in orange), "Aliases", and "Versions". The "Configuration" tab is expanded, showing the "General configuration" section. This section includes fields for "Description" (empty), "Memory" (128 MB), "Ephemeral storage" (512 MB), and "Timeout" (0 min, 3 sec). It also contains sections for "Triggers", "Permissions", and "Destinations". On the right side of the configuration panel, there are buttons for "Throttle", "Copy ARN", and "Actions".

Step 11) I selected API gateway from the drop down list.



Step 12) I entered the configurations as follows:-

- Create a new API from scratch
- API Type-REST API
- Security-open

And then I selected the 'Add' button to add API gateway.

The screenshot shows the 'Trigger configuration' dialog box. In the 'API type' section, 'REST API' is selected. The 'Security' dropdown is set to 'Open'. At the bottom right, there are 'Cancel' and 'Add' buttons.

Step 13) The API gateway was then available in triggers. I selected the URL and opened it in a new tab.

The screenshot shows the 'Function overview' page for the 'Avengers' function. Under the 'Configuration' tab, the 'Triggers' section lists one trigger named 'API Gateway: Avengers-API'. The details show the ARN and endpoint URL. The left sidebar has a 'Triggers' section under 'General configuration'.

Step 14) The required output was generated.



Step 15) I then switched to 'Monitor' tab

The screenshot shows the AWS Lambda console interface. The top navigation bar includes the AWS logo, a search bar, and account information for 'N. Virginia' and 'shubhangi_dutt'. Below the navigation is a breadcrumb trail: Lambda > Functions > Avengers. The main title 'Avengers' is displayed above a green success message: 'The trigger Avengers-API was successfully added to function Avengers. The function is now receiving events from the trigger.' To the right of the message are three buttons: 'Throttle', 'Copy ARN', and 'Actions'. Under the title, there's a 'Function overview' section with a summary card for 'Avengers'. The card shows the function icon, name, layers (0), and last modified time ('3 minutes ago'). It also lists the ARN: 'arn:aws:lambda:us-east-1:242462712086:function:Avengers' and the Function URL. Below the card are tabs for 'Code', 'Test', 'Monitor' (which is selected), 'Configuration', 'Aliases', and 'Versions'. At the bottom of the overview section are links for 'Metrics', 'Logs', and 'Traces', along with buttons to 'View logs in CloudWatch', 'View X-Ray traces in ServiceLens', 'View Lambda Insights', and 'View profiles in CodeGuru'. A 'CloudWatch metrics' section follows, with a note about sending runtime metrics to CloudWatch and a 'Filter by' dropdown set to 'Function'. The URL in the browser is <https://us-east-1.console.aws.amazon.com/lambda/home?region=us-east-1#functions/Avengers?tab=monitoring>.

Step 16) I selected the option ‘View logs in Cloud Watch’.

This screenshot is identical to the previous one, but the 'Logs' tab is now selected under the 'Monitor' section. The 'View logs in CloudWatch' button is highlighted. The rest of the interface, including the function details, tabs, and CloudWatch metrics section, remains the same.

Step 17) Under the log stream column I selected the link for logs.

/aws/lambda/Avengers

Log group details

Retention	Creation time	Stored bytes	ARN
Never expire	1 minute ago	-	arn:aws:logs:us-east-1:242462712086:log-group:/aws/lambda/Avengers:*
KMS key ID	Metric filters	Subscription filters	Contributor Insights rules
-	0	0	-

Log streams (1)

Log stream	Last event time
2022/04/21/[\$LATEST]481a4099330f4e8db8938c03ef4a88d9	2022-04-21 12:20:37 (UTC-04:00)

Step 18)The logos were as follows:-

Log events

You can use the filter bar below to search for and match terms, phrases, or values in your log events. Learn more about filter patterns [\[?\]](#)

Timestamp	Message
2022-04-21T12:20:37.646-04:00	No older events at this moment. Retry
2022-04-21T12:20:37.655-04:00	START RequestId: 7dbde716-6a79-4548-b03a-a0a117044074 Version: \$LATEST
2022-04-21T12:20:37.665-04:00	2022-04-21T16:20:37.6632 7dbde716-6a79-4548-b03a-a0a117044074 INFO Quote selected: 13
2022-04-21T12:20:37.666-04:00	2022-04-21T16:20:37.6662 7dbde716-6a79-4548-b03a-a0a117044074 INFO { body: '{ "q": "Who has directed the ...' }
2022-04-21T12:20:37.668-04:00	END RequestId: 7dbde716-6a79-4548-b03a-a0a117044074
2022-04-21T12:20:37.668-04:00	REPORT RequestId: 7dbde716-6a79-4548-b03a-a0a117044074 Duration: 21.13 ms Billed Duration: 22 ms Memory...
2022-04-21T12:20:50.309-04:00	START RequestId: c91fe37d-5294-4399-9a2d-e3d6353b6fef Version: \$LATEST
2022-04-21T12:20:50.382-04:00	2022-04-21T16:20:50.382Z c91fe37d-5294-4399-9a2d-e3d6353b6fef INFO Quote selected: 11
2022-04-21T12:20:50.383-04:00	2022-04-21T16:20:50.382Z c91fe37d-5294-4399-9a2d-e3d6353b6fef INFO { body: '{ "q": "What type of radiatio...' }
2022-04-21T12:20:50.402-04:00	END RequestId: c91fe37d-5294-4399-9a2d-e3d6353b6fef
2022-04-21T12:20:50.402-04:00	REPORT RequestId: c91fe37d-5294-4399-9a2d-e3d6353b6fef Duration: 89.82 ms Billed Duration: 90 ms Memory...
	No newer events at this moment. Auto retry paused. Resume

PART B: Salesforce.com

Customization on the Standard Object

1) Creating custom field on Account Object

Step 1) I went to quick search box and searched for accounts. I then selected fields.

The screenshot shows the Salesforce Setup interface. On the left, there is a sidebar with navigation links for Home, Chatter, Libraries, Content, Subscriptions, Student Information, and a plus sign for new items. The main content area has a banner at the top that says "It's Better in Lightning" and "Move to Lightning Experience and give your users a productivity boost". Below the banner, the page title is "Student Information" and the sub-page title is "New Custom Field". The main section is titled "Step 1. Choose the field type". It asks to "Specify the type of information that the custom field will contain." Under "Data Type", the "None Selected" option is selected. Other options include Auto Number, Formula, Roll-Up Summary, Lookup Relationship, Master-Detail Relationship, and External Lookup Relationship. Each option has a detailed description below it. At the bottom right of the main section, there are "Next" and "Cancel" buttons. The URL in the browser is stevensinstituteoftechno-3b-dev-ed.my.salesforce.com/p/setup/field/NewCustomFieldStageManager?entity=01l&b000000sFMI&setupid=CustomObjects.

Step 2) I selected 'new' in 'Account Custom Fields & Relationships'.

The screenshot shows the Salesforce Setup interface for managing account custom fields. On the left, there's a sidebar with various setup categories like Communication Templates, Translation Workbench, Data Management, etc. The main area displays a table of account custom fields with columns for Name, Type, API Name, Data Type, Indexed, Controlling Field, and Modified By. Most fields are of type Picklist, except for some like Active, CustomerPriority, and SLAExpirationDate which are Date or Number types.

Action	Field Label	API Name	Data Type	Indexed	Controlling Field	Modified By
Edit Del Replace	Active	Active_c	Picklist			Shubhangi Dutt, 4/18/2022, 12:39 PM
Edit Del Replace	Customer Priority	CustomerPriority_c	Picklist			Shubhangi Dutt, 4/18/2022, 12:39 PM
Edit Del	Number of Locations	NumberOfLocations_c	Number(3, 0)			Shubhangi Dutt, 4/18/2022, 12:39 PM
Edit Del Replace	SLA	SLA_c	Picklist			Shubhangi Dutt, 4/18/2022, 12:39 PM
Edit Del	SLA Expiration Date	SLAExpirationDate_c	Date			Shubhangi Dutt, 4/18/2022, 12:39 PM
Edit Del	SLA Serial Number	SLASerialNumber_c	Text(10)			Shubhangi Dutt, 4/18/2022, 12:39 PM
Edit Del Replace	Upsell Opportunity	UpsellOpportunity_c	Picklist			Shubhangi Dutt, 4/18/2022, 12:39 PM

Step 3) I Created a new field of type checkbox

The screenshot shows the "New Custom Field" wizard in the Salesforce Setup. Step 1: Choose the field type. The user has selected "Checkbox" from the "Data Type" section. Other options shown include Auto Number, Formula, Roll-Up Summary, Lookup Relationship, External Lookup Relationship, Currency, Date, Date/Time, Email, Geolocation, Number, Percent, Phone, Picklist, and Text. The "None Selected" option is also available. The "Step 1" header indicates this is the first step of a multi-step process.

Step 4) I entered the values as follows:-

Field label: 'Field Update'
Default value: unchecked
Field name : Field_Update

The screenshot shows the Salesforce Setup interface for creating a new custom field. The page title is "Account New Custom Field". The step being completed is "Step 2. Enter the details". The field label is set to "Field Update". The default value is set to "Unchecked". The field name is "Field_Update". There are fields for "Description" and "Help Text", both of which are currently empty. At the bottom of the form, there are checkboxes for "Auto add to custom report type" and "Add this field to existing custom report types that contain this entity". Navigation buttons at the bottom right include "Previous", "Next", and "Cancel". On the left side of the screen, there is a sidebar with various links such as Home, Chatter, Libraries, Content, Subscriptions, Student Information, and Administer sections like Release Updates, Manage Users, and Data Classification.

Step 5) I set ‘visible’ as true in check boxes in establish-field-level-security

The screenshot shows the Salesforce Setup interface for creating a new custom field. The page title is "New Custom Field". The current step is "Step 3. Establish field-level security" (Step 3 of 4). The "Field Label" is "Field Update", "Data Type" is "Checkbox", and "Field Name" is "Field_Update". The "Description" field is empty. Below the field details, there is a table titled "Field-Level Security for Profile" listing various user profiles. For each profile, there are two checkboxes: "Visible" (checked) and "Read-Only" (unchecked). All profiles listed have the "Visible" checkbox checked.

	Visible	Read-Only
Analytics Cloud Integration User	<input checked="" type="checkbox"/>	<input type="checkbox"/>
Analytics Cloud Security User	<input checked="" type="checkbox"/>	<input type="checkbox"/>
Authenticated Website	<input checked="" type="checkbox"/>	<input type="checkbox"/>
Authenticated Website	<input checked="" type="checkbox"/>	<input type="checkbox"/>
Contract Manager	<input checked="" type="checkbox"/>	<input type="checkbox"/>
Cross Org Data Proxy User	<input checked="" type="checkbox"/>	<input type="checkbox"/>
Custom: Marketing Profile	<input checked="" type="checkbox"/>	<input type="checkbox"/>
Custom: Sales Profile	<input checked="" type="checkbox"/>	<input type="checkbox"/>
Custom: Support Profile	<input checked="" type="checkbox"/>	<input type="checkbox"/>
Customer Community Login User	<input checked="" type="checkbox"/>	<input type="checkbox"/>
Customer Community Plus Login User	<input checked="" type="checkbox"/>	<input type="checkbox"/>
Customer Community Plus User	<input checked="" type="checkbox"/>	<input type="checkbox"/>

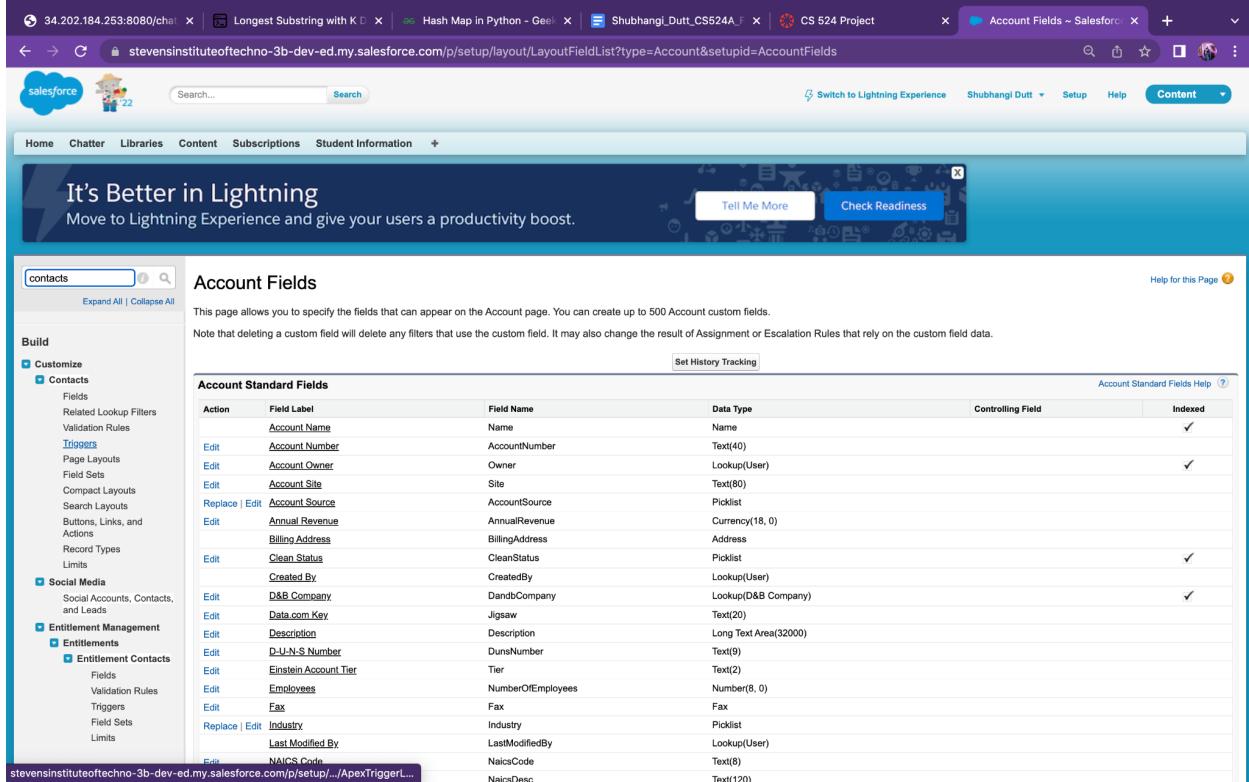
Step 6) I set checkboxes true for ‘add to page layouts’ and clicked save.

The screenshot shows the Salesforce Setup interface for creating a new custom field. The page title is "New Custom Field". The current step is "Step 4. Add to page layouts" (Step 4 of 4). The "Field Label" is "Field Update", "Data Type" is "Checkbox", and "Field Name" is "Field_Update". The "Description" field is empty. Below the field details, there is a table titled "Select the page layouts that should include this field". The "Add Field" checkbox is checked for all four page layouts listed: "Account (Marketing) Layout", "Account (Sales) Layout", "Account (Support) Layout", and "Account Layout".

	Add Field
Account (Marketing) Layout	<input checked="" type="checkbox"/>
Account (Sales) Layout	<input checked="" type="checkbox"/>
Account (Support) Layout	<input checked="" type="checkbox"/>
Account Layout	<input checked="" type="checkbox"/>

2) Creating Apex trigger on Contact Object

Step 1) I searched for Contacts in the quick search box and selected ‘Triggers’



The screenshot shows the Salesforce Setup interface with the URL stevensinstitutetechno-3b-dev-ed.my.salesforce.com/p/setup/layout/LayoutFieldList?type=Account&setupid=AccountFields. The page title is "Account Fields". On the left, there is a sidebar titled "Build" with sections for "Customize" (Contacts, Fields, Related Lookup Filters, Validation Rules, Triggers, Page Layouts, Field Sets, Compact Layouts, Search Layouts, Buttons, Links, and Actions, Record Types, Limits), "Social Media" (Social Accounts, Contacts, and Leads), and "Entitlement Management" (Entitlements, Entitlement Contacts). The main content area displays a table titled "Account Standard Fields" with columns: Action, Field Label, Field Name, Data Type, Controlling Field, and Indexed. The table lists various standard account fields like Name, Account Number, Owner, Site, Account Source, Annual Revenue, Billing Address, Clean Status, Created By, D&B Company, Data.com Key, Description, D-U-N-S Number, Einstein Account Tier, Employees, Fax, Industry, Last Modified By, NAICS Code, and NainsDeen.

Action	Field Label	Field Name	Data Type	Controlling Field	Indexed
Edit	Account Name	Name	Name		✓
Edit	Account Number	AccountNumber	Text(40)		✓
Edit	Account Owner	Owner	Lookup(User)		✓
Edit	Account Site	Site	Text(80)		✓
Replace Edit	Account Source	AccountSource	Picklist		✓
Edit	Annual Revenue	AnnualRevenue	Currency(18, 0)		✓
Edit	Billing Address	BillingAddress	Address		✓
Edit	Clean Status	CleanStatus	Picklist		✓
Edit	Created By	CreatedBy	Lookup(User)		✓
Edit	D&B Company	DandtCompany	Lookup(D&B Company)		✓
Edit	Data.com Key	Jigsaw	Text(20)		✓
Edit	Description	Description	Long Text Area(32000)		✓
Edit	D-U-N-S Number	DunsNumber	Text(9)		✓
Edit	Einstein Account Tier	Tier	Text(2)		✓
Edit	Employees	NumberOfEmployees	Number(8, 0)		✓
Edit	Fax	Fax	Fax		✓
Replace Edit	Industry	Industry	Picklist		✓
Edit	Last Modified By	LastModifiedBy	Lookup(User)		✓
Edit	NAICS Code	NaicsCode	Text(8)		✓
	NainsDeen	NainsDeen	Text(120)		

Step 2) I created a new trigger

The screenshot shows the Salesforce Contact Triggers page. The left sidebar lists various customization options for the Contact object, including Page Layouts, Field Sets, Compact Layouts, Search Layouts, Buttons, Links, and Actions, Record Types, and Limits. The main content area is titled "Contact Triggers" and contains a sub-section titled "Triggers". It displays the message "No triggers defined". There are "New" and "Edit" buttons at the bottom of this section. A "Help for this Page" link is located in the top right corner.

Step 3) I entered the code in the Apex trigger and clicked on 'Save'

The screenshot shows the Apex Trigger Edit page. The left sidebar includes a Lightning Experience Transition Assistant and a Salesforce Mobile Quick Start. The main content area is titled "Apex Trigger" and shows the "Apex Trigger Edit" interface. The "Is Active" checkbox is checked. The code editor contains the following Apex trigger:

```
trigger updateAccount on Contact (after insert, after update) {
    Set <String> accID = New Set <String> ();
    For (Contact con: Trigger.new) {
        if (con.AccountId != Null) {
            accID.add (con.AccountId);
        }
    }
    if (accID.size ()> 0) {
        List <Account> upAccList = new List <Account> ();
        For (Account ac:
                [SELECT Id, Field_Update__c
                 FROM Account
                 WHERE id in: accID
                 AND Field_Update__c != True]) {
            ac.Field_Update__c = true;
            UpAccList.add (ac);
        }
        if (upAccList.size ()> 0)
            update upAccList;
    }
}
```

Step 4) Update account apex trigger was created

The screenshot shows the Salesforce Developer Edition interface. At the top, there are several tabs: '34.202.184.253:8080/chat', 'Longest Substring with K', 'Hash Map in Python - Geeks', 'Shubhangi_Dutt_CS524A_F', 'CS 524 Project', and 'Salesforce - Developer Ed'. Below the tabs, the URL is 'stevensinstituteoftechno-3b-dev-ed.my.salesforce.com/01q8b000000Qmsm'. The main content area displays the 'Apex Trigger Detail' for 'updateAccount'. The trigger code is as follows:

```
1 trigger updateAccount on Contact (after insert, after update) {
2     Set<String> accID = New Set<String>();
3     For (Contact con : Trigger.new) {
4         If (con.AccountId != Null) {
5             accID.add (con.AccountId);
6         }
7     }
8
9
10 }
11 If (accID.size () > 0) {
12     List<Account> upAccList = new List<Account>();
13 For (Account acc : accID) {
14     SELECT Id, Field__Update__c
15     FROM Account
16     WHERE id IN : accId
17     AND Field__Update__c = True);
18 Acc.Field__Update__c = True;
19 UpAccList.add (acc);
20 }
21 If (upAccList.size () > 0)
22     Update upAccList;
23 }
24}
```

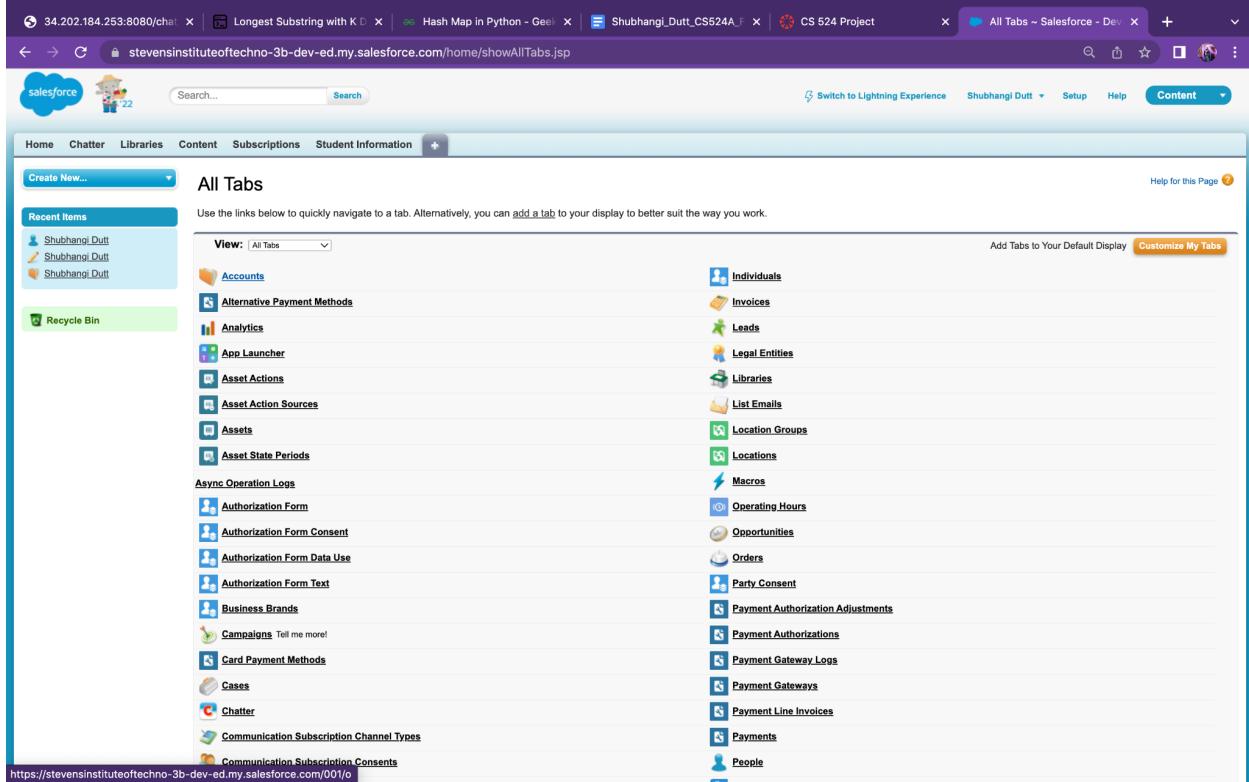
The trigger is named 'updateAccount', has a namespace prefix, and is created by 'Shubhangi Dutt' on 4/22/2022, 10:56 AM. It is associated with the 'Contact' object type and is set to 'Active'. The status bar at the bottom indicates 'Last Modified By Shubhangi Dutt, 4/22/2022, 10:56 AM'.

Step 5) The status can be seen 'Active'

This screenshot is identical to the one above, showing the 'Apex Trigger Detail' for 'updateAccount'. The trigger code, object type, creator, and status are all the same. The status bar at the bottom again shows 'Last Modified By Shubhangi Dutt, 4/22/2022, 10:56 AM'.

3) Creating a Contact record

Step 1) I clicked on the ‘+’ button and then selected the Accounts field.



The screenshot shows the Salesforce All Tabs page. At the top, there are several tabs open in a browser, including "34.202.184.253:8080/cha", "Longest Substring with K D", "Hash Map in Python - GeeksforGeeks", "Shubhangi_Dutt_CS524A_F", "CS 524 Project", and "All Tabs ~ Salesforce - Dev". The main interface has a blue header with the Salesforce logo, a search bar, and navigation links for Home, Chatter, Libraries, Content, Subscriptions, Student Information, and a "+" button to create new items. On the left, there's a sidebar with "Recent Items" (including Shubhangi Dutt, Shubhangi Dutt, Shubhangi Dutt) and a "Recycle Bin". The central area is titled "All Tabs" and contains a grid of icons and labels for various Salesforce objects: Accounts, Alternative Payment Methods, Analytics, App Launcher, Asset Actions, Asset Action Sources, Assets, Asset State Periods, Async Operation Logs, Authorization Form, Authorization Form Consent, Authorization Form Data Use, Authorization Form Text, Business Brands, Campaigns, Card Payment Methods, Cases, Chatter, Communication Subscription Channel Types, Communication Subscription Consents, Individuals, Invoices, Leads, Legal Entities, Libraries, List Emails, Location Groups, Locations, Macros, Operating Hours, Orders, Party Consent, Payment Authorization Adjustments, Payment Authorizations, Payment Gateway Logs, Payment Gateways, Payment Line Invoices, Payments, and People. A "View:" dropdown is set to "All Tabs". A "Help for this Page" link is at the top right, and a "Customize My Tabs" button is near the top center. The URL in the address bar is <https://stevensinstituteoftechno-3b-dev-ed.my.salesforce.com/home/showAllTabs.jsp>.

Step 2) I selected the existing record that I had created.

The screenshot shows the Salesforce Home page. At the top, there is a banner that says "It's Better in Lightning" with a call to action "Move to Lightning Experience and give your users a productivity boost." Below the banner, the main content area is titled "Accounts Home". It displays a table of "Recent Accounts" with one entry: "Shubhangi Dutt" (Account Name), "4562024" (Phone), and "New This Week" (View). To the left, there is a sidebar with sections for "Create New...", "Recent Items" (listing "Shubhangi Dutt" three times), "Recycle Bin", and "Quick Create" (with fields for Account Name, Phone, and Website). On the right, there are sections for "Reports" (listing Active Accounts, Account Owners, Contact Role Report, Account History Report, and Partner Accounts) and "Tools" (listing Import Accounts & Contacts, Mass Delete Accounts, Transfer Accounts, Merge Accounts, and Sales Methodologies). The bottom of the page includes a copyright notice and a URL: <https://stevensinstituteoftechno-3b-dev-ed.my.salesforce.com/0018b00001xwO...>.

Step 3) I could see the Field Update unchecked.I selected edit option

The screenshot shows the "Account Detail" page for the account "Shubhangi Dutt". The "Field Update" checkbox is currently unchecked. Other visible fields include Account Owner (Shubhangi Dutt [Change]), Account Name (Shubhangi Dutt [View Hierarchy]), Parent Account, Account Number (4562024), Account Site (New Jersey), Type (Prospect), Industry (Agriculture), Annual Revenue (\$100,000), Billing Address, Customer Priority, SLA Expiration Date, Number of Locations, Active (status), Created By (Shubhangi Dutt, 4/18/2022, 8:12 PM), Description, Custom Links (Billing), Rating (Cold), Phone (4562024), Fax, Website, Ticker Symbol, Ownership, Employees, SIC Code, Shipping Address (SLA), SLA Serial Number, and Upsell Opportunity. Below the main details, there are sections for Contacts, Opportunities, and Cases, each with a "New" button.

Step 4) I entered my contact details and saved.

The screenshot shows the 'Contact Edit: New Contact' page for Shubhangi Dutt. The contact information is as follows:

Contact Owner	Shubhangi Dutt	Phone	4562024
Salutation	—None--	Home Phone	919229183
First Name	Shubhangi	Mobile	2837465
Last Name	Dutt	Other Phone	3927463
Account Name	Shubhangi Dutt	Fax	
Title	Ms.	Email	sdutt@something.com
Department		Assistant	
Birthdate		Asst. Phone	
Reports To			
Lead Source	—None--		

Address Information

Mailing Street		Other Street	
Mailing City		Other City	
Mailing State/Province		Other State/Province	
Mailing Zip/Postal Code		Other Zip/Postal Code	
Mailing Country		Other Country	

Additional Information

Step 5) My information was now updated.

The screenshot shows the Chatter profile for Shubhangi Dutt. The contact information is identical to the previous screenshot:

Contact Owner	Shubhangi Dutt [Change]	Phone	4562024
Name	Shubhangi Dutt	Home Phone	919229183
Account Name	Shubhangi Dutt	Mobile	2837465
Title	Ms.	Other Phone	3927463
Department		Fax	
Birthdate		Email	sdutt@something.com
Reports To	[View Org Chart]	Assistant	
Lead Source		Asst. Phone	

Opportunities

No records to display

Step 6) The last edited time had changed

The screenshot shows the Salesforce Contact Triggers page. On the left, there's a sidebar with links like Home, Chatter, Libraries, Content, Subscriptions, Student Information, and Administer. Under Administer, it lists Release Updates, Manage Users, Manage Apps, Manage Territories, Company Profile, Data Classification, Privacy Center, Security Controls, Domain Management, Communication Templates, Translation Workbench, Data Management, Mobile Administration, and Desktop Administration. The main content area has a banner saying "It's Better in Lightning" and "Move to Lightning Experience and give your users a productivity boost." Below the banner, there's a table titled "Triggers" with one row:

Action	Name	Api Version	Status	Size Without Comments	Last Modified By
Edit Del	updateAccount	54.0	Active	744	Shubhangi Dutt, 4/22/2022, 10:56 AM

Step 7) the 'Field Update' field was now updated with a check sign.

The screenshot shows the Salesforce Account detail page for "Shubhangi Dutt". The account number is 4562024. The "Field Update" field is checked. Other details include Account Owner (Shubhangi Dutt), Account Name (Shubhangi Dutt), Parent Account (None), Account Type (Prospect), Industry (Agriculture), Annual Revenue (\$100,000), Billing Address (SLA), SLA Expiration Date, Number of Locations, Active status, Created By (Shubhangi Dutt, 4/18/2022, 8:12 PM), Description, Custom Links (Billing), and Last Modified By (Shubhangi Dutt, 4/22/2022, 11:01 AM). The page also shows a feed with no updates and a sidebar with recent items and a recycle bin.