# Senior Development Project

We expect you to build this out as you would a production project for a client, only on a small scale (tests, error handling, etc). Where you don't have the time to implement something, add comments to your code or documentation on how you would have changed or added to your implementation in the "real world".

### Deliverables

1. Git Repo with all code and documentation
2. **BONUS** - a working Amazon Connect phone number to test in your environment :-)

### Exercise

1. Create a Lambda that converts phone numbers to vanity numbers and save the best 5 resulting vanity numbers and the caller's number in a DynamoDB table. "Best" is defined as you see fit - explain your thoughts.

**Anant’s Remarks**

* A **vanity** phone **number** is a custom-made set of digits that either spell out a word or are memorable in some way. Example: 1-800-BUILDER
* So, Output for the phone number **'18002845337'** is **1800BUILDER**
* I was trying to figure out in Node.js platform but as per my search in Python first we need to install the module of Vanity number and import the same in our code after that Write a Lambda function to achieve the task.
* Attached two Main files wordify.py and helper.py to test the Vanity number logic.
* To verify the Vanity number, I have also attached a Java code ‘VanityNumber to Phone Number Program’ file
* For write data in dynamo Db please refer the ‘LambdaFunction\_WriteData in Dynamo DB’ file.

1. Create an Amazon Connect contact flow that looks at the caller's phone number and says the 3 vanity possibilities that come back from the Lambda function.

**Anant’s Remarks**

* Dynamo DB created ‘Dynamo\_DB\_Table snapshot’
* Lambda function created which is lookup the Caller’s phone number and if match it return the vanity number ‘Lambda Function\_PhoneNumber Lookup’
* Attached Contact flow file ‘CustomerPhoneNumber’

1. Create a [custom resource for CloudFormation](https://docs.aws.amazon.com/AWSCloudFormation/latest/UserGuide/template-custom-resources.html)] that will allow you to publish the contact flow to a Connect instance with the appropriate Lambda ARN already in the contact flow so that there is no manual configuration of the flow.

**Anant’s Remarks**

* Based on my understanding on this use case, the custom resource to be created would be a lambda function and the lambda function can automate based on the steps desired for the workflow of the automation. Generally, in this case, I would need to:
* define the steps take to manually configure this
* Convert the steps into a lambda function.
* Attached CloudFormation template file for your reference ‘CloudFormation Template’

1. Build a deployment package with AWS SAM, AWS CDK, or CloudFormation to allow a user, or assignment reviewer, to deploy your Lambda, custom resource, and anything else you'd like to add into their own AWS Account/Amazon Connect instance.
2. **SUPER BONUS -** a web app that displays the vanity numbers from the last 5 callers.
3. Writing and Documentation
   1. Record your reasons for implementing the solution the way you did, struggles you faced and problems you overcame.

* Sometimes the problem we are trying to solve isn’t the real problem at all. It could be a symptom and not the cause. To solve a problem, we may need to take the perspective of looking down on it. From a different vantage point, we may discover that the problem we have focused on is in fact part of a bigger problem – one which would require a completely different approach. Before attempting to put a solution in place, seek out the “real” problem. Once we understand the problem in its entirety and context, only then can you determine the best course of action.
  1. What shortcuts did you take that would be a bad practice in production?
* Our production systems are the most important because they run our businesses and governments. These systems serve our customers and have a direct impact on customer satisfaction. It's normal for a developer's working environment to be "broken" for a few hours now and then, but we must manage production systems according to impeccable standards of quality, reliability, and availability. That's why it's crucial to limit risks to our production systems. **Instead of shortcuts, we can engage the ‘word’ Automation here to achieve our task quicky and deploy the solution on production environments**.
  1. What would you have done with more time? We know you have a life. :-)
* If I had more free time, I would have spent on reading the good books, articles, and best lectures as many as I could. **Good books increase power of knowledge and wisdom**. Also, I would have to spend my time on creative works. Traveling is also good source of knowledge and part of education as well. It’s digital age and there are lot of tools available on different platforms to learn in the spare time which I prefer. **Social work is very vast and old field to spend spare time there**.
  1. What other considerations would you make before making our toy app into something that would be ready for high volumes of traffic, potential attacks from bad folks, etc.
* Understand visitor expectations
* Everyone on the Internet is in a hurry. Whether they're browsing on a computer or mobile device, visitors to your site expect content to appear at lightning speeds. Failing to meet expectations can mean big losses
* Overhaul hosting
* A dedicated server hosting plan is better suited for sites with large numbers of daily visitors
* Streamline site design
* Optimize content delivery
* Using a content delivery network (CDN) is another strategic move for high traffic websites. A CDN is a collection of servers that are spread around the world and used to **optimize content delivery for local visitors**.
  1. Please include an architecture diagram.

