# Lab Tasks

## Phase 1: Collect and Label Utterances

1. Create Resource Group
2. Create Storage Account
   1. Create adf-resources container
   2. Create interaction-data container
3. Create Data Lake Analytics & Store
   1. Register Data Lake Analytics assemblies: Microsoft.Analytics.Samples.Formats.dll, Newtonsoft.Json.dll
   2. Connect Data Lake Analytics account to Storage Account – so AML can read data
   3. Add U-SQL Advanced Analytics Extensions to Data Lake
4. Create Event Hub
   1. Create Shared Access Policies: sendFromBot, listenIntoStreamAnalytics
   2. Create Event Hub entity
5. Create Text Analytics Cognitive Service
6. Create Logic App
   1. Add HTTP Request trigger and JSON schema
   2. Add Text Analytics – Detect Sentiment Action
   3. Add Event Hubs – Send Event Action
7. Create Stream Analytics Job
   1. Add Event Hub Input – botincomingdata
   2. Add Query to send data to powerbi and datalake outputs
   3. Add datalake output
   4. Add powerbi output
   5. Start job
8. Register Your Bot at https://dev.botframework.com
9. Create & Configure LUIS
   1. Create LUIS account in Azure Portal
   2. Register LUIS account key at luis.ai
   3. Create LUIS model with intents and entities
   4. Train, test, and publish LUIS model
10. Build Your Bot
    1. Get Logic App Post URL
    2. Open Visual Studio Solution
    3. Update Web.config
    4. Install and test with Bot Framework Channel Emulator
    5. Deploy bot to Azure API App
    6. Update Bot Endpoint
11. Simulate Bot Interactions
    1. Configure Web Chat Channel
    2. Run simulator
12. Use LUIS Active Learning to improve model
    1. Identify and assign suggested utterances to correct intents and entities
    2. Train, test, publish
13. Create Power BI report and dashboard
14. Monitor Azure services

## Phase 2: Set up Machine Learning Model

1. Prepare ML training set – Run U-SQL job to process archived messages into format that will be consumed by AML
2. Create AML Workspace & Experiment
   1. Create AML workspace
   2. Create training experiment
   3. Create predictive experiment
   4. Deploy as web service

## Phase 3: Integrate Bot with Machine Learning Model

1. Update Web.config file
2. Update code to call GetOptimalOfferFromMLService
3. Deploy changes to API App

## Phase 4: Code Path Processing and Analytics Dashboard

1. Create SQL Data Warehouse
2. Create Data Factory in Azure Portal
3. Create Data Factory Visual Studio Project
4. Deploy VS project to Data Factory in Azure
5. Monitor Data Factory
6. Create Power BI report and dashboard directly from SQL DW
7. View dashboard and create alert on iPhone