Architecture Design

Heart Disease Diagnostic Analysis

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DOCUMENT VERSION CONTROL

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1.INTRODUCTION

1.1 What is an Architecture Design Document?

Anysoftwareneedsthearchitecturaldesigntorepresentthedesignofthe software,IEEEdefinesarchitecturaldesignas"theprocessofdefininga collectionofhardwareandsoftwarecomponentsandtheirinterfacesto establishtheframeworkforthedevelopmentofacomputersystem."The softwarethatisbuiltforcomputer-basedsystemscanexhibitoneofthese many architectures.
Each style will describe a system category that consists of:

- Asetofcomponents(ex:adatabase,computationalmodules)that will perform a function required by the system.
- Thesetofconnectorswillhelpincoordination,communication, and cooperation between the components.
- Conditionsthathowcomponentscanbeintegratedtoformthe system.
- Semanticmodelshelpthedesignertounderstandtheoverall properties of the system.

1.2 What is Scope?

ArchitectureDesignDocument(ADD)isanarchitecturaldesignprocess thatfollowsastep-by-steprefinementprocess.Theprocesscanbeused fordesigningdatastructures,requiredsoftwarearchitecture,sourcecode andultimately,performancealgorithms.Overall,thedesignprinciples maybedefinedduringrequirementanalysisandthenrefinedduring architectural design work.
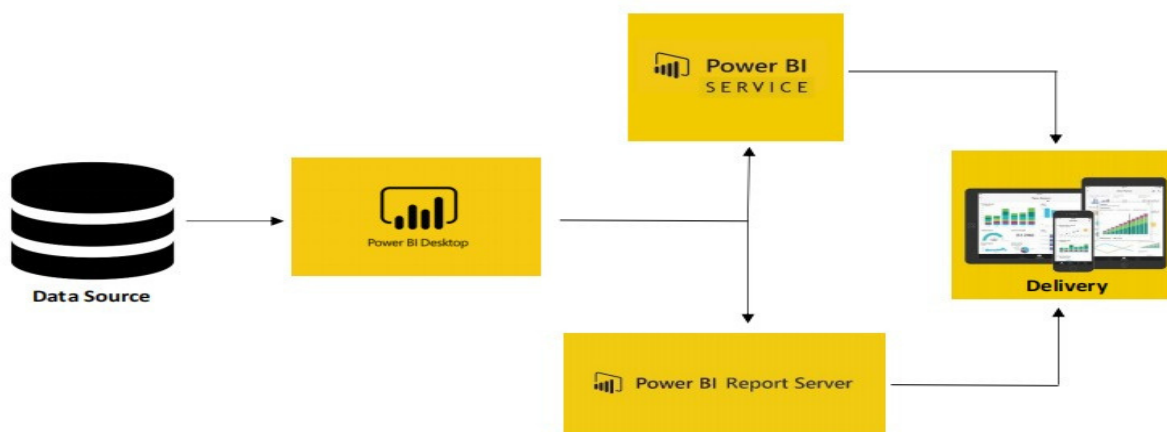
2. Architecture

2.1 Power BI Architecture

PowerBIisabusinesssuitethatincludesseveraltechnologiesthat worktogether.Todeliveroutstandingbusinessintelligence solutions.MicrosoftPowerBItechnologyconsistsofagroupof components such as:

a)Power Query (for data mash-up and transformation)
b)Power BI Desktop (a companion development tool)
c)PowerBIMobile(forAndroid,iOS,Windows phones)
d)Power Pivot (for in-memory tabular data modelling)
e)Power View (for viewing data visualizations)
f)Power Map (for visualizing 3D geospatial data)
g)Power Q&A (for natural language Q&A)

Insimpleterms,aPowerBIusertakesdatafromvariousdatasources suchasfiles,Azuresource,onlineservices,DirectQueryorgateway sources.Then,theyworkwiththatdataonaclientdevelopmenttoolsuch asPowerBIDesktop.Here,theimporteddataiscleanedandtransformed according to the user's needs.
Oncethedataistransformedandformatted,itisreadytouseinmaking visualizationsinareport.Areportisacollectionofvisualizationslike graphs, charts, tables, filters, and slicers.

2.2 Components of Power BI Architecture

a.Data Sources

An important component of Power BI is its vast range of data sources.You can import data from files in your system, cloud-based online data sources or connect directly to live connections.If you import from data on-premise or online services there is a limit of 1GB.Some commonly used data sources in Power BI are:

a)Excel
b)Text/CSV
c)XML
d)JSON
e)Oracle Database
f)IBM DB2 Database
g)MySQL Database
h)PostgreSQL Database
i)Sybase Database
j)Teradata Database
k)SAP HANA Database
l)SAP Business Warehouse server
m)Amazon Redshift
n)Impala
o)Google Big Query (Beta)
p)Azure SQL Database
q)Salesforce Reports
r)Google Analytics
s)Facebook
t)GitHub

b. Power BI Desktop

PowerBIDesktopisaclient-sidetoolknownasacompanion developmentandauthoringtool.Thisdesktop-basedsoftwareisloaded withtoolsandfunctionalitiestoconnecttodatasources,transformdata, data modelling and create reports.

c. Power BI Service

PowerBIServiceisaweb-basedplatformfromwhereyoucanshare reportsmadeonPowerBIDesktop,collaboratewithotherusers,and create dashboards. It is available in three versions:

●Free version
●Pro version
●Premium version

d. Power BI Report Server

ThePowerBIReportServerissimilartothePowerBIService.Theonly differencebetweenthesetwoisthatPowerBIReportServerisan on-premiseplatform.Itisusedbyorganizationswhodonotwantto publishtheirreportsonthecloudandareconcernedaboutthesecurityof their data.

3. Deployment

3.1 Power BI Deployment

Thedeploymentprocessletsyouclonecontentfromonestageinthe pipelinetoanother,typicallyfromdevelopmenttotest,andfromtestto production.Duringdeployment,PowerBIcopiesthecontentfromthe currentstage,intothetargetone.Theconnectionsbetweenthecopied itemsarekeptduringthecopyprocess.PowerBIalsoappliesthe configureddeploymentrulestotheupdatedcontentinthetargetstage. Deployingcontentmaytakeawhile,dependingonthenumberofitems beingdeployed.Duringthistime,youcannavigatetootherpagesinthe Power BI portal, but you cannot use the content in the target stage.

3.2 Publish datasets and reports from Power BI Desktop

WhenyoupublishaPowerBIDesktopfiletothePowerBIservice,you publishthedatainthemodeltoyourPowerBIworkspace.Thesameis trueforanyreportsyoucreatedinReportview.You'llseeanewdataset withthesamename,andanyreportsinyourWorkspacenavigator. PublishingfromPowerBIDesktophasthesameeffectasusingGetData in Power BI to connect to and upload a Power BI Desktop file.