**BAIT3273 Tutorial 4**

**Azure Architecture**

• Datacenters and Regions

• Geographies, Availability Zones

• Region Pairs

**Instructions**

• Please use this document to answer all the questions in this tutorial.

• Rename the file with your student code and tutorial group number. For example, 1909846-BAIT3273-S1-2020-Tut1-RDSG01 with RDSG01 as your respective programme and group number. Besides, replace *XXXXXXXX* at the header with your student code.

• Every student must submit this doc individually at the end of the tutorial to google classroom.

**Task 1: Azure Infrastructure, Regions, Geographies**

You're a small business owner with a great set of web-based services that your clients love. The one difficulty you face is some clients are experiencing a network lag accessing your services from distant locations. This problem used to be expensive to solve - requiring new data centers and costly networks to connect them.

The emergence of cloud computing has made the solution easy. Microsoft Azure provides a reliable, redundant, energy-efficient infrastructure that spans more

than 100 highly secure facilities worldwide, linked by one of the largest networks on earth. Azure allows you to gain global reach with local presence, keep your data secure and compliant with local laws, and have a reduced carbon footprint with Microsoft's environment friendly datacenters.

Microsoft Azure is made up of datacenters located around the globe. When you leverage a service or create a resource such as a SQL database or virtual machine, you are using physical equipment in one or more of these locations.

The specific datacenters aren't exposed to end users directly; instead, Azure organizes them into regions.

1.a

• What is a region?

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| --- |
| Answer:  A region is a set of datacenters deployed within a latency-defined perimeter and connected through a dedicated regional low-latency network. Azure gives you the flexibility to deploy applications where you need to, including across multiple regions to deliver cross-region resiliency. |

• Why is this important?

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| --- |
| Answer: |

1.b

Azure divides the world into geographies that are defined by geopolitical boundaries or country borders. An Azure geography is a discrete market typically containing two or more regions that preserve data residency and compliance boundaries.

• What are the benefits of geographies?

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| Answer:  Geographies allow customers with specific data-residency and compliance needs to keep their data and applications close. Geographies are fault-tolerant to withstand complete region failure through their connection to the dedicated high-capacity networking infrastructure of Azure. |

**Task 2: Availability Zones, Region Pairs**

2.

• What is an Availability Zone?

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| Answer:  Availability Zones are unique physical locations within an Azure region. Each zone is made up of one or more datacenters equipped with independent power, cooling, and networking. |

Availability zones are created using one or more datacenters, and there is a minimum of three zones within a single region. However, it's possible that a large enough disaster could cause an outage large enough to affect even two datacenters. That's why Azure also creates region pairs.

• What is a Region Pair.

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| --- |
| Answer:  An Azure Region Pair is a relationship between 2 Azure Regions within the same geographic region for disaster recovery purposes. The Azure Region pairs are connected directly together and offer multiple benefits when utilized together in the same distributed or redundant system. |