Cybersecurity

Project 1 Technical Brief - Azure Web App

Make a copy of this document before you begin. Place your answers below each question. This completed document will be your deliverable for Project 1. Submit it through Canvas when you're finished with the project at the end of the week.

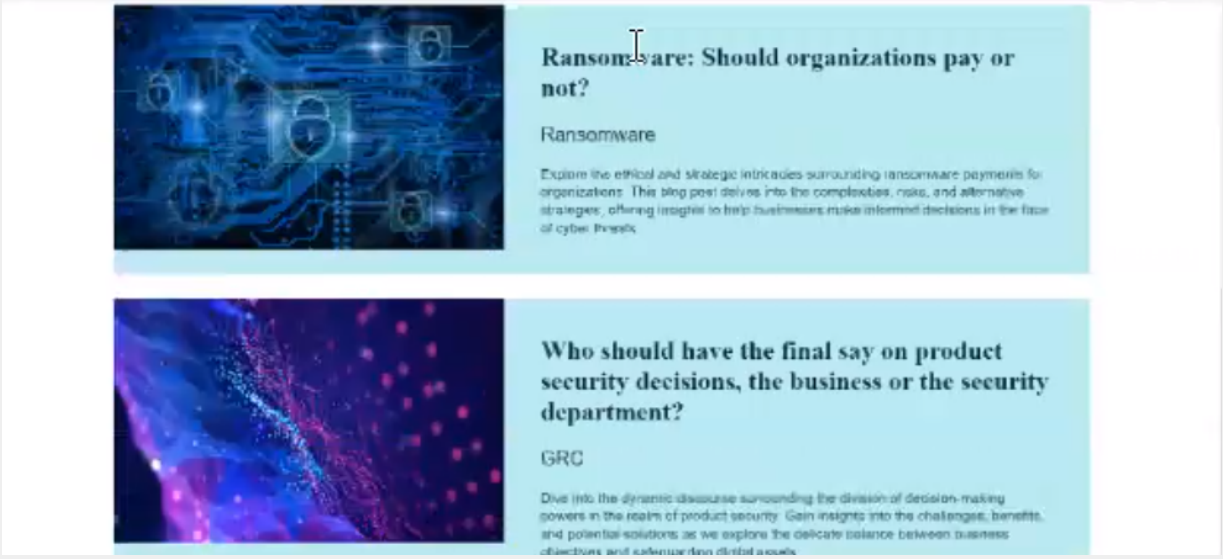
Your Web Application

Enter the URL for the web application that you created:

```
https://pranayssecurityresume.azurewebsites.net/
(offline now)
```

Paste screenshots of your website created (Be sure to include your blog posts):

```
Day 1: Built - Launched the website
```




```
Day 2: Secured - Clickable blogs with full stories, improved CSS and worked on SSL certification.

Day 3: Protected - Front Door WAF Policy.
```

Day 1 Questions

General Questions

1. What option did you select for your domain (Azure free domain, GoDaddy domain)?

```
Azure Free Domain
```

2. What is your domain name?

```
pranayssecurityresume.azurewebsites.net
```

Networking Questions

1. What is the IP address of your webpage?

```
20.211.64.15
```

2. What is the location (city, state, country) of your IP address?

```
Sydney, New South Wales, Australia
```

3. Run a DNS lookup on your website. What does the NS record show?

```
nslookup -type=mx pranayssecurityblog.azurewebsites.net
```

Web Development Questions

1. When creating your web app, you selected a runtime stack. What was it? Does it work on the front end or the back end?

```
PHP 8.2
```

2. Inside the `/var/www/html` directory, there was another directory called assets. Explain what was inside that directory.

```
Images that were present on the website along with a CSS file.
```

3. Consider your response to the above question. Does this work with the front end or back end?

```
Front end
```

Day 2 Questions

Cloud Questions

1. What is a cloud tenant?

```
A cloud tenant is an individual or organization that uses cloud services and
resources provided by a cloud service provider.
```

2. Why would an access policy be important on a key vault?

```
An access policy is crucial for controlling and restricting who can access
and manage sensitive information stored in a key vault, enhancing security
and preventing unauthorized access.
```

3. Within the key vault, what are the differences between keys, secrets, and certificates?

```
Keys: Used for cryptographic operations and securing sensitive data.
Secrets: Any sensitive information (e.g., connection strings, passwords)
that needs to be protected.
Certificates: Digital certificates used for authentication and securing
communications.
```

Cryptography Questions

1. What are the advantages of a self-signed certificate?

- Quick and easy to create.
- No cost associated with obtaining a certificate from a certificate authority.

2. What are the disadvantages of a self-signed certificate?

- Lack of trust as it's not verified by a trusted third party.
- Browsers may show security warnings to users.

3. What is a wildcard certificate?

```
A wildcard certificate is a certificate that can secure a domain and its
subdomains with a single certificate.
```

4. When binding a certificate to your website, Azure only provides TLS versions 1.0, 1.1, and 1.2. Explain why SSL 3.0 isn't provided.

```
SSL 3.0 is vulnerable to various security issues (e.g., POODLE attack). TLS
```

```
1.0, 1.1, and 1.2 are more secure alternatives.
```

5. After completing the Day 2 activities, view your SSL certificate and answer the following questions:

    a. Is your browser returning an error for your SSL certificate? Why or why not?

```
There is no error. The SSL certificate has been verified and is working
normally.
```

    b. What is the validity of your certificate (date range)?

```
Issued On Friday, 10 March 2023 at 13:35:55
Expires On Monday, 4 March 2023 at 13:35:55
```

    c. Do you have an intermediate certificate? If so, what is it?

```
Yes, Microsoft Azure TLS Issuing CA 02
```

    d. Do you have a root certificate? If so, what is it?

```
Yes, DigiCert Global Root G2
```

    e. Does your browser have the root certificate in its root store?

```
Yes
```

    f. List one other root CA in your browser's root store.

```
GTS Root R4
```

Day 3 Questions

Cloud Security Questions

1. What are the similarities and differences between Azure Web Application Gateway and Azure Front Door?

```
Similarities: Both provide load balancing and security features.
Differences: Web Application Gateway operates at the application layer,
while Front Door works at the network edge, offering global load balancing
and DDoS protection.
```

2. A feature of the Web Application Gateway and Front Door is “SSL Offloading.” What is SSL offloading? What are its benefits?

```
SSL offloading is the process of removing the SSL encryption from incoming
traffic at a device like a load balancer (Web Application Gateway or Front
Door). Benefits include reducing server load, centralizing SSL management,
and improving overall performance.
```

3. What OSI layer does a WAF work on?

```
A Web Application Firewall (WAF) works at the application layer (Layer 7) of
the OSI model.
```

4. Select one of the WAF managed rules (e.g., directory traversal, SQL injection, etc.), and define it.

```
A rule designed to detect and block SQL injection attacks, a common web
application vulnerability where attackers insert malicious SQL code into
input fields.
```

5. Consider the rule that you selected. Could your website (as it is currently designed) be impacted by this vulnerability if Front Door wasn’t enabled? Why or why not?

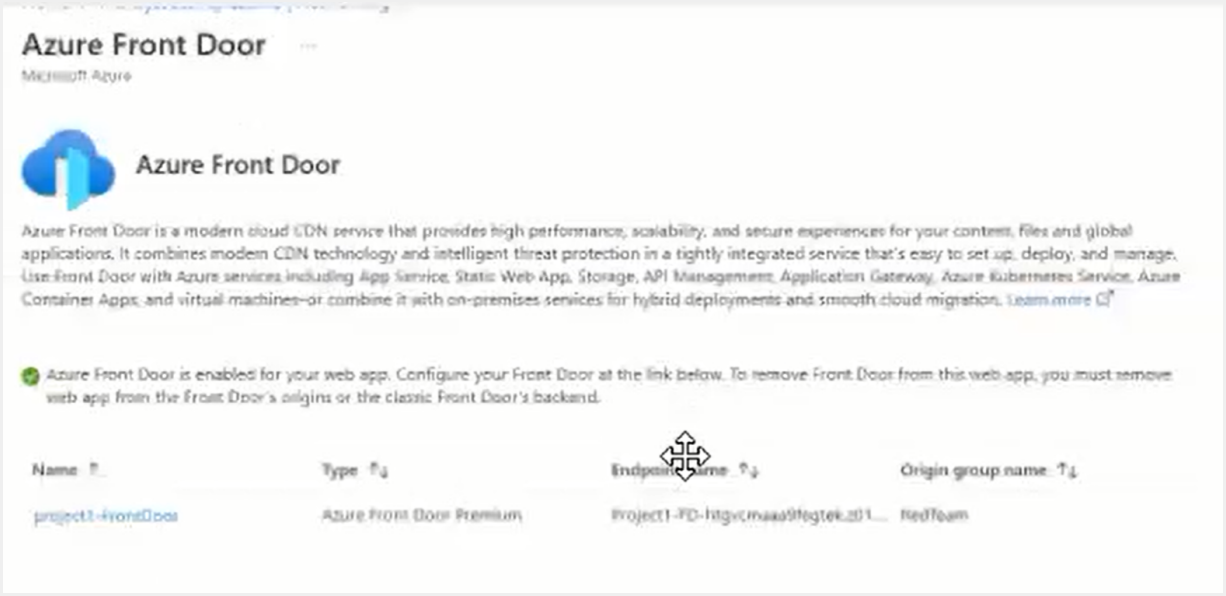
```
Yes, without Front Door, the website could be vulnerable to SQL injection
attacks. Front Door adds an extra layer of security, helping to mitigate
such vulnerabilities.
```

6. Hypothetically, say that you create a custom WAF rule to block all traffic from Canada. Does that mean that anyone who resides in Canada would not be able to access your website? Why or why not?

Yes, if a custom rule blocks all traffic from Canada, users residing in Canada would not be able to access the website. The rule acts as a restriction based on geographical location. However, if someone residing in Canada uses a VPN they can bypass the firewall policy.

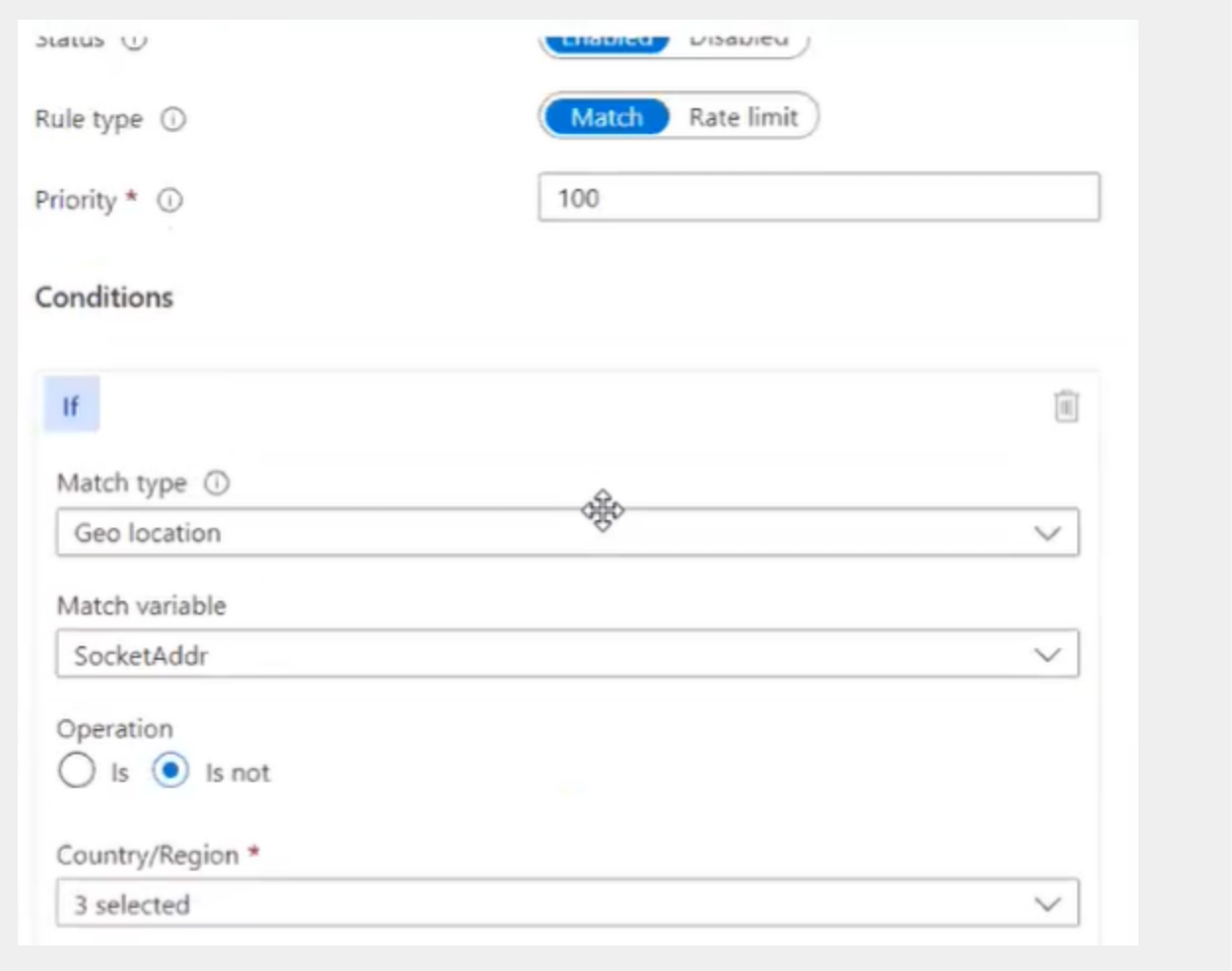
7. Include screenshots below to demonstrate that your web app has the following:

    a. Azure Front Door enabled



(Low image quality)

    b. A WAF custom rule



Disclaimer on Future Charges

Please type "**YES**" after one of the following options:

- ***Maintaining website after project conclusion****: I am aware that I am responsible for any charges that I incur by maintaining my website. I have reviewed the guidance for minimizing costs and monitoring Azure charges.*

- ***Disabling website after project conclusion****: I am aware that I am responsible for deleting all of my project resources as soon as I have gathered all of my web application screen shots and completed this document.*

YES