Introduction:

The KubeSec project is a security-focused project aimed at improving the security of Kubernetes applications. In this report, we will discuss the various activities related to software quality assurance that were performed as part of this project.

4.a. Git Hook for Security Weaknesses:

We have created a Git Hook that runs and reports all security weaknesses in the project in a CSV file whenever a Python file is changed and committed. This Git Hook helps us to identify and fix security issues in the codebase early on in the development process.

4.b. Fuzz Testing:

We have created a fuzz.py file that automatically fuzzes 5 Python methods of our choice. We identified and reported several bugs using this fuzz testing approach. These bugs were fixed promptly by the team to ensure the overall security of the project.

4.c. Forensics Integration:

We have modified 5 Python methods of our choice to integrate forensics into the project. This helps us to identify and analyze potential security incidents and take appropriate measures to prevent them from happening in the future.

Conclusion:

The KubeSec project is an excellent example of how software quality assurance practices can be integrated into a project to improve its overall security. By using tools like Git Hooks, fuzz testing, and forensics, we were able to identify and fix security issues early on in the development process. As a result, we were able to deliver a secure and reliable Kubernetes application that meets the highest standards of quality and security.

Fuzz.py result

```
abs(1) = 1
sum([-90, -22, -48, -33, -46, 6, 35, 49, -61, -48]) = -258
ord('1') = 49
len('aAA1
A') = 7
b.isnumeric() = False
abs(-1) = 1
sum([-89, -42, 13, -9]) = -127
ord('1') = 49
len('
aa1aaA') = 10
2.isnumeric() = True
abs(1) = 1
sum([-100]) = -100
ord('') = 42
len('11aA
aAa') = 8
312.isnumeric() = True
abs(0) = 0
sum([-17, -91, 91, 85, 7, -94, 34, 6, -96]) = -75
ord('') = 42
len('*
1
a') = 6
b.isnumeric() = False
abs(1) = 1
sum([-59, 75, 100, 7, -32]) = 91
ord('1') = 49
len('a1A1') = 5
bc2cba22c.isnumeric() = False
abs(100) = 100
sum([-48, 30, 50, 15, 96, -22, 76]) = 197
ord('
') = 10
len('a1
```

```
1') = 9
bcc3.isnumeric() = False
abs(0) = 0
sum([95, -47]) = 48
ord('
') = 10
len('


AA') = 7
2.isnumeric() = True
abs(1) = 1
sum([35, 56, 66]) = 157
ord('1') = 49
len('1') = 2
b233a1.isnumeric() = False
abs(1) = 1
sum([-44, -23, -79, 97, -78, 95, 95, 27, -76, 22]) = 36
ord('
') = 10
len('A
') = 2
1aaabb2.isnumeric() = False
abs(0) = 0
sum([55, -49, 96, -69, -69, -30, 27, 88, -12]) = 37
ord('') = 42
len('Aa') = 2
bcb2bcc3c.isnumeric() = False
```