

HW2:

Installation of openFaasd

```
CLI:
  commit: b1c09c0243f69990b6c81a17d7337f0fd23e7542
  version: 0.14.2
+ install_faasd
++ uname -m
+ arch=x86_64
+ case $arch in
+ suffix=
+ sudo curl -fSLs https://github.com/openfaas/faasd/releases/download/0.16.0/faasd --output /usr/
al/bin/faasd
+ sudo chmod a+x /usr/local/bin/faasd
+ mkdir -p /tmp/faasd-0.16.0-installation/hack
+ cd /tmp/faasd-0.16.0-installation
+ sudo curl -fSLs https://raw.githubusercontent.com/openfaas/faasd/0.16.0/docker-compose.yaml --o
ut docker-compose.yaml
+ sudo curl -fSLs https://raw.githubusercontent.com/openfaas/faasd/0.16.0/prometheus.yml --output
ometheus.yml
+ sudo curl -fSLs https://raw.githubusercontent.com/openfaas/faasd/0.16.0/resolv.conf --output re
v.conf
+ sudo curl -fSLs https://raw.githubusercontent.com/openfaas/faasd/0.16.0/hack/faasd-provider.ser
e --output hack/faasd-provider.service
+ sudo curl -fSLs https://raw.githubusercontent.com/openfaas/faasd/0.16.0/hack/faasd.service --ou
t hack/faasd.service
+ sudo /usr/local/bin/faasd install
2022/04/28 18:58:43 Writing to: "/var/lib/faasd/secrets/basic-auth-password"
2022/04/28 18:58:43 Writing to: "/var/lib/faasd/secrets/basic-auth-user"
Check status with:
  sudo journalctl -u faasd --lines 100 -f

Login with:
  sudo cat /var/lib/faasd/secrets/basic-auth-password | faas-cli login -s
+ install_caddy
+ '[' '' -z '' ']'
+ echo 'Skipping caddy installation as FAASD_DOMAIN.'
Skipping caddy installation as FAASD_DOMAIN.
```

```
credentials saved for admin http://127.0.0.1:8080
ajs@ashita:~/faasd$ sudo systemctl status faasd
● faasd.service - faasd
   Loaded: loaded (/lib/systemd/system/faasd.service; enabled; vendor preset: enabled)
   Active: active (running) since Thu 2022-04-28 18:58:45 UTC; 19min ago
     Main PID: 16020 (faasd)
        Tasks: 7 (limit: 1066)
      Memory: 20.8M (limit: 500.0M)
     CGroup: /system.slice/faasd.service
             └─16020 /usr/local/bin/faasd up

Apr 28 18:59:22 ashita faasd[16020]: 2022/04/28 18:59:22 Resolver: "faasd-provider"="10.62.0.1"
Apr 28 18:59:22 ashita faasd[16020]: 2022/04/28 18:59:22 Resolver: "nats"="10.62.0.2"
Apr 28 18:59:22 ashita faasd[16020]: 2022/04/28 18:59:22 Resolver: "prometheus"="10.62.0.3"
Apr 28 18:59:22 ashita faasd[16020]: 2022/04/28 18:59:22 Resolver: "basic-auth-plugin"="10.62.0.4"
Apr 28 18:59:22 ashita faasd[16020]: 2022/04/28 18:59:22 Resolver: "gateway"="10.62.0.5"
Apr 28 18:59:22 ashita faasd[16020]: 2022/04/28 18:59:22 Resolver: "queue-worker"="10.62.0.6"
Apr 28 18:59:22 ashita faasd[16020]: 2022/04/28 18:59:22 Looking up IP for: "prometheus"
Apr 28 18:59:22 ashita faasd[16020]: 2022/04/28 18:59:22 Proxy from: 127.0.0.1:9090, to: promethe
Apr 28 18:59:22 ashita faasd[16020]: 2022/04/28 18:59:22 faasd: waiting for SIGTERM or SIGINT
Apr 28 18:59:22 ashita faasd[16020]: 2022/04/28 18:59:22 Proxy from: 0.0.0.0:8080, to: gateway:80
ajs@ashita:~/faasd$ sudo systemctl status faasd-provider
● faasd-provider.service - faasd-provider
   Loaded: loaded (/lib/systemd/system/faasd-provider.service; enabled; vendor preset: enabled)
   Active: active (running) since Thu 2022-04-28 18:58:45 UTC; 21min ago
     Main PID: 16018 (faasd)
        Tasks: 3 (limit: 1066)
      Memory: 5.4M (limit: 500.0M)
     CGroup: /system.slice/faasd-provider.service
             └─16018 /usr/local/bin/faasd provider

Apr 28 18:58:45 ashita systemd[1]: Started faasd-provider.
Apr 28 18:58:45 ashita faasd[16018]: 2022/04/28 18:58:45 faasd-provider starting..          Service
Apr 28 18:58:45 ashita faasd[16018]: faasd version: 0.16.0          commit: e668beef139ee094ad7364a
Apr 28 18:58:45 ashita faasd[16018]: 2022/04/28 18:58:45 Writing network config...
Apr 28 18:58:45 ashita faasd[16018]: 2022/04/28 18:58:45 Listening on TCP port: 8081
ajs@ashita:~/faasd$ _
```

Tasks:

1. Screenshot of invoking Figlet function:

```
ajs@ashita:~$ echo "Hello, Faas, world" | faas-cli invoke figlet
Hello, Faas, world
ajs@ashita:~$
```

2. slack-request/handler.py:

```
import json
def handle(req):
    data = {
        "text": "Serverless Message",
        "attachments": [
            {
                "title": "The Awesome world of Cloud Computing! COEN 241",
                "fields": [
                    {
                        "title": "Amazing Level",
                        "value": "100",
                        "short": True
                    }
                ],
                "author_name": "Ashita Shetty",
                "author_icon": "https://avatars.githubusercontent.com/u/88510433?v=4",
                "image_url": "https://www.scu.edu/media/offices/umc/scu-brand-guidelines/visual-identity-amp-photography/visual-identity-toolkit/logos-amp-seals/Mission-Dont3.png"
            },
            {
                "title": "About COEN 241",
                "text": "COEN 241 is the most awesome class ever!."
            },
            {
                "fallback": "Would you recommend COEN 241 to your friends?",
                "title": "Would you recommend COEN 241 to your friends?",
                "callback_id": "response123",
                "color": "#3AA3E3",
                "attachment_type": "default",
                "actions": [
                    {
                        "name": "recommend",
                        "text": "Of Course!",
                        "type": "button",
                        "value": "recommend"
                    },
                    {
                        "name": "definitely",
                        "text": "Most Definitely!",
```

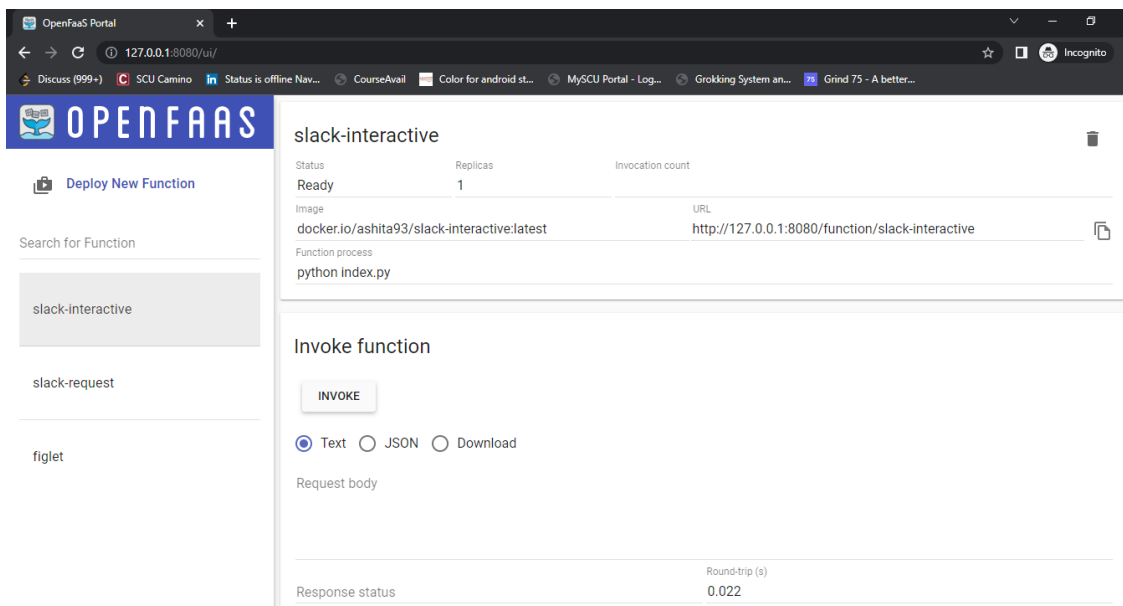
3. slack-interactive/handler.py:

```
import json
import urllib
def handle(req):
    urlstring = urllib.unquote(req).decode('utf8').strip('payload=')
    response = json.loads(urlstring)
    data = {
        "attachments": [
            {
                "replace_original": True,
                "response_type": "ephemeral",
                "fallback": "Required plain-text summary of the attachment.",
                "color": "#36a64f",
                "pretext": "Ahh, yeah! Great choice, COEN 241 is absolutely amazing!",
                "author_name": "Ashita Shetty",
                "author_link": "https://github.com/AshitaShetty",
                "author_icon": "https://avatars.githubusercontent.com/u/88510433?v=4",
                "title": "COEN 241",
                "title_link": "https://www.scu.edu/engineering/academic-programs/departments-of-computer-engineering/graduate/course-description/",
                "text": "Head over to COEN 241",
                "image_url": "https://www.scu.edu/media/offices/umc/scu-brand-guidelines/visual-identity-amp-photography/visual-identity-toolkit/logos-amp-seals/Mission-Dont3.png",
                "thumb_url": "https://www.scu.edu/engineering/academic-programs/departments-of-computer-engineering/graduate/course-descriptions/",
                "footer": "Slack Apps built on OpenFaas",
                "footer_icon": "https://a.slack-edge.com/45901/marketing/img/_rebrand/meta/slack-hash_256.png",
                "ts": 123456789
            }
        ]
    }
    return json.dumps(data)
```

4. Screenshot of sudo journalctl -u faasd --lines 40

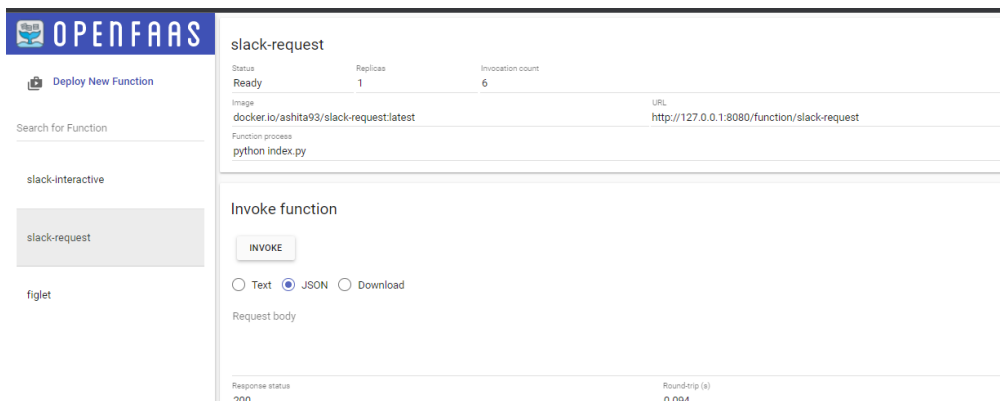
```
ajs@ashita:~/functions$ sudo journalctl -u faasd --lines
[sudo] password for ajs:
-- Logs begin at Thu 2022-04-28 18:44:40 UTC, end at Mon 2022-05-09 02:00:03 UTC. --
Apr 28 19:55:19 ashita faasd[622]: 2022/04/28 19:55:19 Resolver: "faasd-provider"="10.62.0.1"
Apr 28 19:55:19 ashita faasd[622]: 2022/04/28 19:55:19 Resolver: "basic-auth-plugin"="10.62.0.2"
Apr 28 19:55:19 ashita faasd[622]: 2022/04/28 19:55:19 Resolver: "nats"="10.62.0.3"
Apr 28 19:55:19 ashita faasd[622]: 2022/04/28 19:55:19 Resolver: "prometheus"="10.62.0.4"
Apr 28 19:55:19 ashita faasd[622]: 2022/04/28 19:55:19 Resolver: "gateway"="10.62.0.5"
Apr 28 19:55:19 ashita faasd[622]: 2022/04/28 19:55:19 Resolver: "queue-worker"="10.62.0.6"
Apr 28 19:55:19 ashita faasd[622]: 2022/04/28 19:55:19 Looking up IP for: "gateway"
Apr 28 19:55:19 ashita faasd[622]: 2022/04/28 19:55:19 Proxy from: 0.0.0.0:8080, to: gateway:8080 (>
Apr 28 19:55:19 ashita faasd[622]: 2022/04/28 19:55:19 faasd: waiting for SIGTERM or SIGINT
Apr 28 19:55:19 ashita faasd[622]: 2022/04/28 19:55:19 Proxy from: 127.0.0.1:9090, to: prometheus:9>
lines 1-11/11 (END)
```

5. Provide a screenshot of your OpenFaaS gateway AFTER deploying figlet, slack-handler and slack-interactive functions




6. Provide a screenshot of invoking slack-request and slack-interactive functions


Slack-request:



```
Response body
{
  "text": "Serverless Message",
  "attachments": [
    {
      "fields": [
        {
          "short": true,
          "value": "100%",
          "title": "Amazing Level"
        }
      ],
      "author_icon": "https://avatars.githubusercontent.com/u/88510433?v=4",
      "image_url": "https://www.scu.edu/media/offices/umc/scu-brand-guidelines/visual-identity-amp-photography/visual-identity-toolkit/logos-amp-seals/Mission-Dont3.png",
      "author_name": "Ashita Shetty",
      "title": "The Awesome world of Cloud Computing! COEN 241"
    },
    {
      "text": "COEN 241 is the most awesome class ever!.",
      "title": "About COEN 241"
    },
    {
      "title": "Would you recommend COEN 241 to your friends?",
      "color": "#3AA3E3",
      "actions": [
        {
          "text": "Of Course!",
          "type": "button",
          "name": "recommend",
          "value": "recommend"
        },
        {
          "text": "Most Definitely!",
          "type": "button",
          "name": "definitely",
          "value": "definitely"
        }
      ],
      "callback_id": "response123",
      "fallback": "Would you recommend COEN 241 to your friends?",
      "attachment_type": "default"
    }
  ]
}
```

Slack-interactive:

**OPENFAAS**

 **Deploy New Function**

Search for Function

slack-interactive

slack-request

figlet

slack-interactive

Status	Replicas	Invocation count
Ready	1	7

Image	URL
docker.io/ashita93/slack-interactive:latest	http://127.0.0.1:8080/function/slack-interactive

Function process

python index.py

Invoke function

INVOKE

☐ Text ☒ JSON ☐ Download

Request body

{}

Response status	Round-trip (s)
200	0.146

2000.146

Response body

{
 "attachments": [
 {
 "footer": "Slack Apps built on OpenFaas",
 "author_link": "https://github.com/AshitaShetty",
 "color": "#36a64f",
 "text": "Head over to COEN 241",
 "title": "COEN 241",
 "ts": 123456789,
 "author_name": "Ashita Shetty",
 "title_link": "https://www.scu.edu/engineering/academic-programs/departments-of-computer-engineering/graduate/course-description/",
 "image_url": "https://www.scu.edu/media/offices/umc/scu-brand-guidelines/visual-identity-amp-photography/visual-identity-toolkit/logos-amp-seals/Mission-Dont3.png",
 "response_type": "ephemeral",
 "replace_original": true,
 "footer_icon": "https://a.slack-edge.com/45901/marketing/img/_rebrand/meta/slack_hash.256.png",
 "pretext": "Ahh yeah! Great choice, COEN 241 is absolutely amazing!",
 "fallback": "Required plain-text summary of the attachment.",
 "thumb_url": "https://www.scu.edu/engineering/academic-programs/department-of-computer-engineering/graduate/course-descriptions/",
 "author_icon": "https://avatars.githubusercontent.com/u/88510433?v=4"
 }
]
}

Questions:

1. What is the command to invoke the slack-request function (4 pts)?

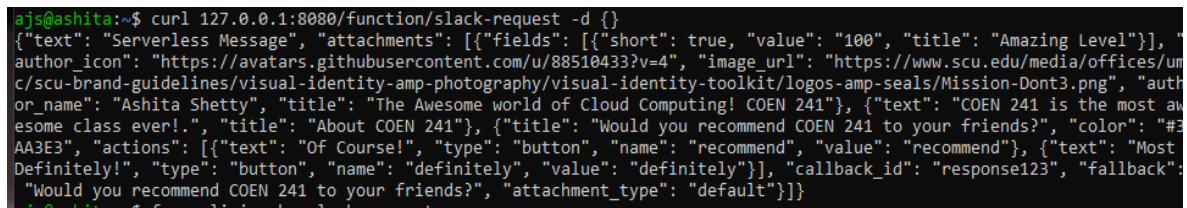
- Via Curl
`curl 127.0.0.1:8080/function/slack-request -d {}`
- Via faas-cli
`faas-cli invoke slack-request`

2. What is the output you see when you invoke the slack-request function? (2 pts)

Output:

```
{
  "text": "Serverless Message",
  "attachments": [
    {
      "fields": [
        {
          "short": true,
          "value": "100",
          "title": "Amazing Level"
        }
      ],
      "author_icon": "https://avatars.githubusercontent.com/u/88510433?v=4",
      "image_url": "https://www.scu.edu/media/offices/umc/scu-brand-guidelines/visual-identity-amp-photography/visual-identity-toolkit/logos-amp-seals/Mission-Dont3.png",
      "author_name": "Ashita Shetty",
      "title": "The Awesome world of Cloud Computing! COEN 241",
      "text": "COEN 241 is the most awesome class ever!.",
      "title": "About COEN 241",
      "title": "Would you recommend COEN 241 to your friends?",
      "color": "#3AA3E3",
      "actions": [
        {
          "text": "Of Course!",
          "type": "button",
          "name": "recommend",
          "value": "recommend"
        },
        {
          "text": "Most Definitely!",
          "type": "button",
          "name": "definitely",
          "value": "definitely"
        }
      ],
      "callback_id": "response123",
      "fallback": "Would you recommend COEN 241 to your friends?",
      "attachment_type": "default"
    }
  ]
}
```

Screenshot:



```
ajs@ashita:~$ curl 127.0.0.1:8080/function/slack-request -d {}
{"text": "Serverless Message", "attachments": [{"fields": [{"short": true, "value": "100", "title": "Amazing Level"}], "author_icon": "https://avatars.githubusercontent.com/u/88510433?v=4", "image_url": "https://www.scu.edu/media/offices/umc/scu-brand-guidelines/visual-identity-amp-photography/visual-identity-toolkit/logos-amp-seals/Mission-Dont3.png", "author_name": "Ashita Shetty", "title": "The Awesome world of Cloud Computing! COEN 241", "text": "COEN 241 is the most awesome class ever!.", "title": "About COEN 241", "title": "Would you recommend COEN 241 to your friends?", "color": "#3AA3E3", "actions": [{"text": "Of Course!", "type": "button", "name": "recommend", "value": "recommend"}, {"text": "Most Definitely!", "type": "button", "name": "definitely", "value": "definitely"}], "callback_id": "response123", "fallback": "Would you recommend COEN 241 to your friends?", "attachment_type": "default"}]}
```

3. What is the command to invoke the slack-interactive function? (4 pts)

- Via curl
`curl 127.0.0.1:8080/function/slack-interactive -d {}`
- Via faas-cli
`faas-cli invoke slack-interactive`

4. What is the output you see when you invoke the slack-interactive function? (2 pts)

Output:

```
{
  "attachments": [
    {
      "footer": "Slack Apps built on OpenFaas",
      "author_link": "https://github.com/AshitaShetty",
      "color": "#36a64f",
      "text": "Head over to COEN 241",
      "title": "COEN 241",
      "ts": 123456789,
      "author_name": "Ashita Shetty",
      "title_link": "https://www.scu.edu/engineering/academic-programs/departments-of-computer-engineering/graduate/course-description/",
      "image_url": "https://www.scu.edu/media/offices/umc/scu-brand-guidelines/visual-identity-amp-photography/visual-identity-toolkit/logos-amp-seals/Mission-Dont3.png",
      "response_type": "ephemeral",
      "replace_original": true,
      "footer_icon": "https://a.slack-edge.com/45901/marketing/img/_rebrand/meta/slack_hash_256.png",
      "pretext": "Ahh yeah! Great choice, COEN 241 is absolutely amazing!",
      "fallback": "Required plain-text summary of the attachment.",
      "thumb_url": "https://www.scu.edu/engineering/academic-programs/departments-of-computer-engineering/graduate/course-descriptions/",
      "author_icon": "https://avatars.githubusercontent.com/u/88510433?v=4"
    }
  ]
}
```

Screenshot:

```
ajs@ashita:~$ curl 127.0.0.1:8080/function/slack-interactive -d {}
{"attachments": [{"footer": "Slack Apps built on OpenFaas", "author_link": "https://github.com/AshitaShetty", "color": "#36a64f", "text": "Head over to COEN 241", "title": "COEN 241", "ts": 123456789, "author_name": "Ashita Shetty", "title_link": "https://www.scu.edu/engineering/academic-programs/departments-of-computer-engineering/graduate/course-description/", "image_url": "https://www.scu.edu/media/offices/umc/scu-brand-guidelines/visual-identity-amp-photography/visual-identity-toolkit/logos-amp-seals/Mission-Dont3.png", "response_type": "ephemeral", "replace_original": true, "footer icon": "https://a.slack-edge.com/45901/marketing/img/_rebrand/meta/slack_hash_256.png", "pretext": "Ahh yeah! Great choice, COEN 241 is absolutely amazing!", "fallback": "Required plain-text summary of the attachment.", "thumb_url": "https://www.scu.edu/engineering/academic-programs/department-of-computer-engineering/graduate/course-descriptions/", "author_icon": "https://avatars.githubusercontent.com/u/88510433?v=4"}]}
```

5. How would you pass different arguments to the functions? (4 pts)

Answer:

One way of passing different arguments is by changing the json payload which is the argument to the function. Also in slack-request we are passing two different arguments through action type button, we can add more to pass different arguments.

Another way is to modify the yml file to update the content-type to plain-text or any other supported environment.

6. How would you change the slack-interactive function to react to different inputs? (4 pts)

Answer:

By using different Action URL invocation payload. We can update the slack-interactive function to behave differently when a particular action is selected, which will contain all the context that the function needs to move to the next step.

If we need an external menu with our slack app, we can also use Options Load URL payload, which is similar to Action URL invocation payload, just that it can use menu options externally.