Homework 2 Report

Answers to Step 6 Questions

1. Command used to invoke the slack request function is "faas-cli" and "curl"
   a. Via "curl": **"curl http:/127.0.0.1:<routing-port-number-8080-by-default>/function/slack-request"**
   b. Via "faas-cli": **"faas-cli invoke slack-request"**
2. The output of the slack-request function is a JSON object which is returned on invoking the function. Screenshots are provided on page 7.
3. The command to invoke slack-interactive function is using "faas-cli" or "curl" as given below
   a. Via "curl": **"curl http:/127.0.0.1:<routing-port-number-8080-by-default>/function/slack-interactive"**
   b. Via "faas-cli": **"faas-cli invoke slack-interactive"**
4. The output of the slack-interactive function is a JSON object, returned upon invoking the function with a JSON object input. Screenshots are provided on page 6.
5. Passing arguments to the function could be done either
   a. Via STDIN: **"curl http:/127.0.0.1:8080/function/<function> -d <data string>"**
   b. Via echo: **"echo <JSON string> | faas-cli invoke <function>"**
6. The way to change the slack-interactive function to respond to various inputs is by taking in the request string and decoding it into a JSON object. The final key-value pairs could be added to the JSON object and returned back in the response body.
   Another way of doing this is by taking in **kwargs (list of arguments, similar to command-line arguments) in the python handle function (specific to python).

Answers to Step 7 Tasks:

- Screenshot of invoking the Figlet function
  Invoked using the command-line interface, since I was running the ubuntu live server in a VM.
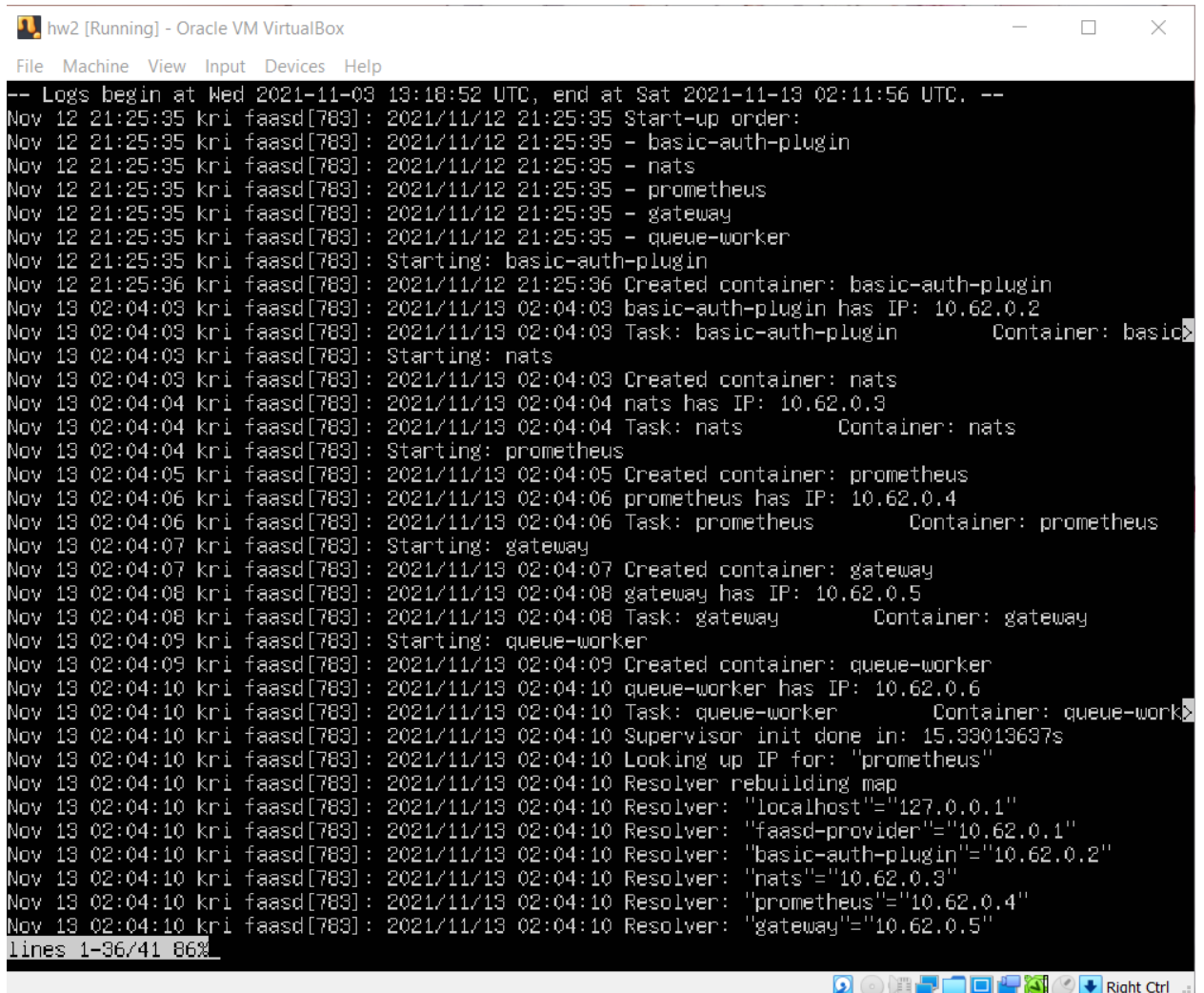

Invoked using the UI provided at OpenFaas gateway on my host machine (port 3080 was VM 8080)

- Screenshot of running journalctl of faasd (40 lines)
  It is basically the shows us the journal entries of faasd tasks (the first 40 lines) that occurred from the start of faasd

```
hw2 [Running] - Oracle VM VirtualBox                                        —    □    ✕

File  Machine  View  Input  Devices  Help
-- Logs begin at Wed 2021-11-03 13:18:52 UTC, end at Sat 2021-11-13 02:11:56 UTC. --
Nov 12 21:25:35 kri faasd[783]: 2021/11/12 21:25:35 Start-up order:
Nov 12 21:25:35 kri faasd[783]: 2021/11/12 21:25:35 - basic-auth-plugin
Nov 12 21:25:35 kri faasd[783]: 2021/11/12 21:25:35 - nats
Nov 12 21:25:35 kri faasd[783]: 2021/11/12 21:25:35 - prometheus
Nov 12 21:25:35 kri faasd[783]: 2021/11/12 21:25:35 - gateway
Nov 12 21:25:35 kri faasd[783]: 2021/11/12 21:25:35 - queue-worker
Nov 12 21:25:35 kri faasd[783]: Starting: basic-auth-plugin
Nov 12 21:25:36 kri faasd[783]: 2021/11/12 21:25:36 Created container: basic-auth-plugin
Nov 13 02:04:03 kri faasd[783]: 2021/11/13 02:04:03 basic-auth-plugin has IP: 10.62.0.2
Nov 13 02:04:03 kri faasd[783]: 2021/11/13 02:04:03 Task: basic-auth-plugin        Container: basic>
Nov 13 02:04:03 kri faasd[783]: Starting: nats
Nov 13 02:04:03 kri faasd[783]: 2021/11/13 02:04:03 Created container: nats
Nov 13 02:04:04 kri faasd[783]: 2021/11/13 02:04:04 nats has IP: 10.62.0.3
Nov 13 02:04:04 kri faasd[783]: 2021/11/13 02:04:04 Task: nats        Container: nats
Nov 13 02:04:04 kri faasd[783]: Starting: prometheus
Nov 13 02:04:05 kri faasd[783]: 2021/11/13 02:04:05 Created container: prometheus
Nov 13 02:04:06 kri faasd[783]: 2021/11/13 02:04:06 prometheus has IP: 10.62.0.4
Nov 13 02:04:06 kri faasd[783]: 2021/11/13 02:04:06 Task: prometheus        Container: prometheus
Nov 13 02:04:07 kri faasd[783]: Starting: gateway
Nov 13 02:04:07 kri faasd[783]: 2021/11/13 02:04:07 Created container: gateway
Nov 13 02:04:08 kri faasd[783]: 2021/11/13 02:04:08 gateway has IP: 10.62.0.5
Nov 13 02:04:08 kri faasd[783]: 2021/11/13 02:04:08 Task: gateway        Container: gateway
Nov 13 02:04:09 kri faasd[783]: Starting: queue-worker
Nov 13 02:04:09 kri faasd[783]: 2021/11/13 02:04:09 Created container: queue-worker
Nov 13 02:04:10 kri faasd[783]: 2021/11/13 02:04:10 queue-worker has IP: 10.62.0.6
Nov 13 02:04:10 kri faasd[783]: 2021/11/13 02:04:10 Task: queue-worker        Container: queue-work>
Nov 13 02:04:10 kri faasd[783]: 2021/11/13 02:04:10 Supervisor init done in: 15.33013637s
Nov 13 02:04:10 kri faasd[783]: 2021/11/13 02:04:10 Looking up IP for: "prometheus"
Nov 13 02:04:10 kri faasd[783]: 2021/11/13 02:04:10 Resolver rebuilding map
Nov 13 02:04:10 kri faasd[783]: 2021/11/13 02:04:10 Resolver: "localhost"="127.0.0.1"
Nov 13 02:04:10 kri faasd[783]: 2021/11/13 02:04:10 Resolver: "faasd-provider"="10.62.0.1"
Nov 13 02:04:10 kri faasd[783]: 2021/11/13 02:04:10 Resolver: "basic-auth-plugin"="10.62.0.2"
Nov 13 02:04:10 kri faasd[783]: 2021/11/13 02:04:10 Resolver: "nats"="10.62.0.3"
Nov 13 02:04:10 kri faasd[783]: 2021/11/13 02:04:10 Resolver: "prometheus"="10.62.0.4"
Nov 13 02:04:10 kri faasd[783]: 2021/11/13 02:04:10 Resolver: "gateway"="10.62.0.5"
lines 1-36/41 86%
                                                    ⟳ ◉ ▦ ⊞ ◻ ⬜ ⟥ ◀ ⊘ ⬇ Right Ctrl ⌐
```
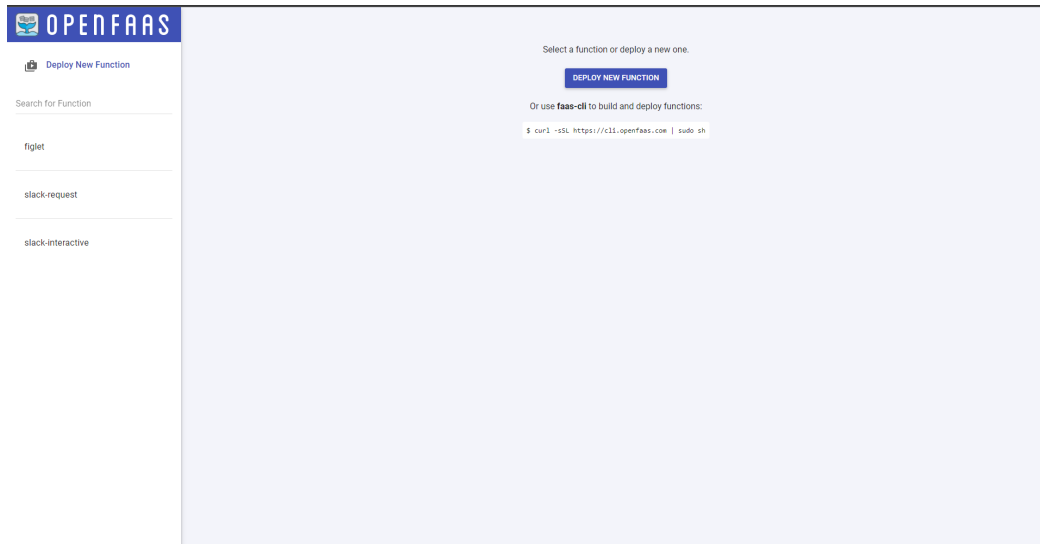
```
Nov 12 21:25:35 kri faasd[783]: 2021/11/12 21:25:35 - gateway
Nov 12 21:25:35 kri faasd[783]: 2021/11/12 21:25:35 - queue-worker
Nov 12 21:25:35 kri faasd[783]: Starting: basic-auth-plugin
Nov 12 21:25:36 kri faasd[783]: 2021/11/12 21:25:36 Created container: basic-auth-plugin
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Nov 13 02:04:03 kri faasd[783]: 2021/11/13 02:04:03 Task: basic-auth-plugin       Container: basic
Nov 13 02:04:03 kri faasd[783]: Starting: nats
Nov 13 02:04:03 kri faasd[783]: 2021/11/13 02:04:03 Created container: nats
Nov 13 02:04:04 kri faasd[783]: 2021/11/13 02:04:04 nats has IP: 10.62.0.3
Nov 13 02:04:04 kri faasd[783]: 2021/11/13 02:04:04 Task: nats          Container: nats
Nov 13 02:04:04 kri faasd[783]: Starting: prometheus
Nov 13 02:04:05 kri faasd[783]: 2021/11/13 02:04:05 Created container: prometheus
Nov 13 02:04:06 kri faasd[783]: 2021/11/13 02:04:06 prometheus has IP: 10.62.0.4
Nov 13 02:04:06 kri faasd[783]: 2021/11/13 02:04:06 Task: prometheus        Container: prometheus
Nov 13 02:04:07 kri faasd[783]: Starting: gateway
Nov 13 02:04:07 kri faasd[783]: 2021/11/13 02:04:07 Created container: gateway
Nov 13 02:04:08 kri faasd[783]: 2021/11/13 02:04:08 gateway has IP: 10.62.0.5
Nov 13 02:04:08 kri faasd[783]: 2021/11/13 02:04:08 Task: gateway          Container: gateway
Nov 13 02:04:09 kri faasd[783]: Starting: queue-worker
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Nov 13 02:04:10 kri faasd[783]: 2021/11/13 02:04:10 Supervisor init done in: 15.33013637s
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Nov 13 02:04:10 kri faasd[783]: 2021/11/13 02:04:10 Resolver rebuilding map
Nov 13 02:04:10 kri faasd[783]: 2021/11/13 02:04:10 Resolver: "localhost"="127.0.0.1"
Nov 13 02:04:10 kri faasd[783]: 2021/11/13 02:04:10 Resolver: "faasd-provider"="10.62.0.1"
Nov 13 02:04:10 kri faasd[783]: 2021/11/13 02:04:10 Resolver: "basic-auth-plugin"="10.62.0.2"
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Nov 13 02:04:10 kri faasd[783]: 2021/11/13 02:04:10 Resolver: "gateway"="10.62.0.5"
Nov 13 02:04:10 kri faasd[783]: 2021/11/13 02:04:10 Resolver: "queue-worker"="10.62.0.6"
Nov 13 02:04:10 kri faasd[783]: 2021/11/13 02:04:10 faasd: waiting for SIGTERM or SIGINT
Nov 13 02:04:10 kri faasd[783]: 2021/11/13 02:04:10 Looking up IP for: "gateway"
Nov 13 02:04:10 kri faasd[783]: 2021/11/13 02:04:10 Proxy from: 0.0.0.0:8080, to: gateway:8080 (10.
Nov 13 02:04:10 kri faasd[783]: 2021/11/13 02:04:10 Proxy from: 127.0.0.1:9090, to: prometheus:9090
lines 6-41/41 (END)
```

- Screenshot of OpenFaas Gateway after deploying the functions
  This is the UI screenshot of the OpenFaas gateway which is available at
  127.0.0.1:8080 (on guest VM, 3080 on host VM) which lists all the
  functions deployed on the OpenFaas.

- Screenshot of invoking slack-request and slack-interactive functions
  - Slack-interactive
    The command-line invocation of slack-interactive using echo and faas-cli.

```
root@kri:~/final# echo " {\"Name\": \"King\"}" | faas-cli invoke slack-interactive
{"attachments": [{"replace_original": true, "response_type": "ephemeral", "fallback": "Required plai
n-text summary of the attachment.", "color": "#36a64f", "pretext": "Ahh yeah! Great choice, COEN 241
 is absolutely amazing!", "author_name": "", "author_link": "https://github.com/KrithikNaralasetty",
 "author_icon": "https://image.shutterstock.com/image-photo/three-best-friends-near-coastline-600w-1
017156991.jpg", "title": "COEN 241", "title_link": "https://www.scu.edu/engineering/academic-program
s/department-of-computer-engineering/graduate/course-descriptions/", "text": "Head over to COEN 241"
, "image_url": "https://www.scu.edu/media/offices/umc/scu-brand-guidelines/visual-identity-amp-photo
graphy/visual-identity-toolkit/logos-amp-seals/Mission-Dont3.png", "thumb_url": "https://www.scu.edu
/engineering/academic-programs/department-of-computer-engineering/graduate/course-descriptions/", "f
ooter": "Slack Apps built on OpenFaas", "footer_icon": "https://a.slack-edge.com/45901/marketing/img
/_rebrand/meta/slack_hash_256.png", "ts": 123456789}]}
root@kri:~/final# _
```

The UI invocation of slack-interactive function which responds with the body of the JSON object

○ Slack-request
The command-line invocation of slack-interactive using echo and faas-cli.


```
root@kri:~/final# echo " {\"Name\": \"King\"}" | faas-cli invoke slack-request
{"text": "Serverless Message", "attachments": [{"title": "The Awesome world of Cloud Computing! COEN
 241", "fields": [{"title": "Amazing Level", "value": "100", "short": true}], "author_name": "https:
//github.com/KrithikNaralasetty", "author_icon": "", "image_url": "https://image.shutterstock.com/im
age-photo/three-best-friends-near-coastline-600w-1017156991.jpg"}, {"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 Cours
e!", "type": "button", "value": "recommend"}, {"name": "definitely", "text": "Most Definitely!", "ty
pe": "button", "value": "definitely"}]}]}
root@kri:~/final# _
```

The UI invocation of slack-request function which responds with the body of the JSON object.


```
slack-request                                                                              🗑

Status              Replicas              Invocation count
Ready               1                     6

Image                                          URL
docker.io/knaralasetty/slack-request:latest    http://127.0.0.1:3080/function/slack-request    📋

Function process
python3 index.py
```

```
Invoke function

  [ INVOKE ]

○ Text  ● JSON  ○ Download
Request body
{"Name": "King"}

Response status         Round-trip (s)
200                     0.376
Response body
{
  "text": "Serverless Message",
  "attachments": [
    {
      "title": "The Awesome world of Cloud Computing! COEN 241",
      "fields": [
```

```
{
  "text": "Serverless Message",
  "attachments": [
    {
      "title": "The Awesome world of Cloud Computing! COEN 241",
      "fields": [
        {
          "title": "Amazing Level",
          "value": "100",
          "short": true
        }
      ],
      "author_name": "https://github.com/KrithikNaralasetty",
      "author_icon": "",
      "image_url": "https://image.shutterstock.com/image-photo/three-best-friends-near-coastline-600w-1017156991.jpg"
    },
    {
      "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!",
          "type": "button",
          "value": "definitely"
```