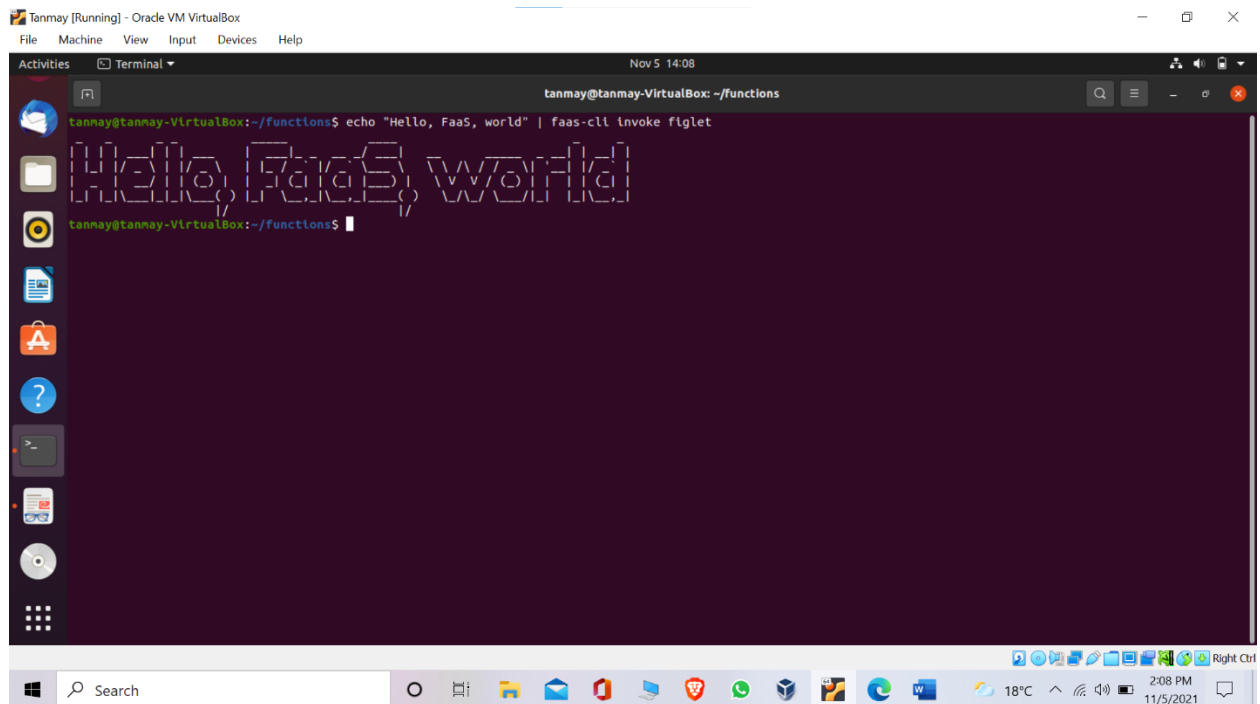


1.) Screenshot of invoking the Figlet Function:



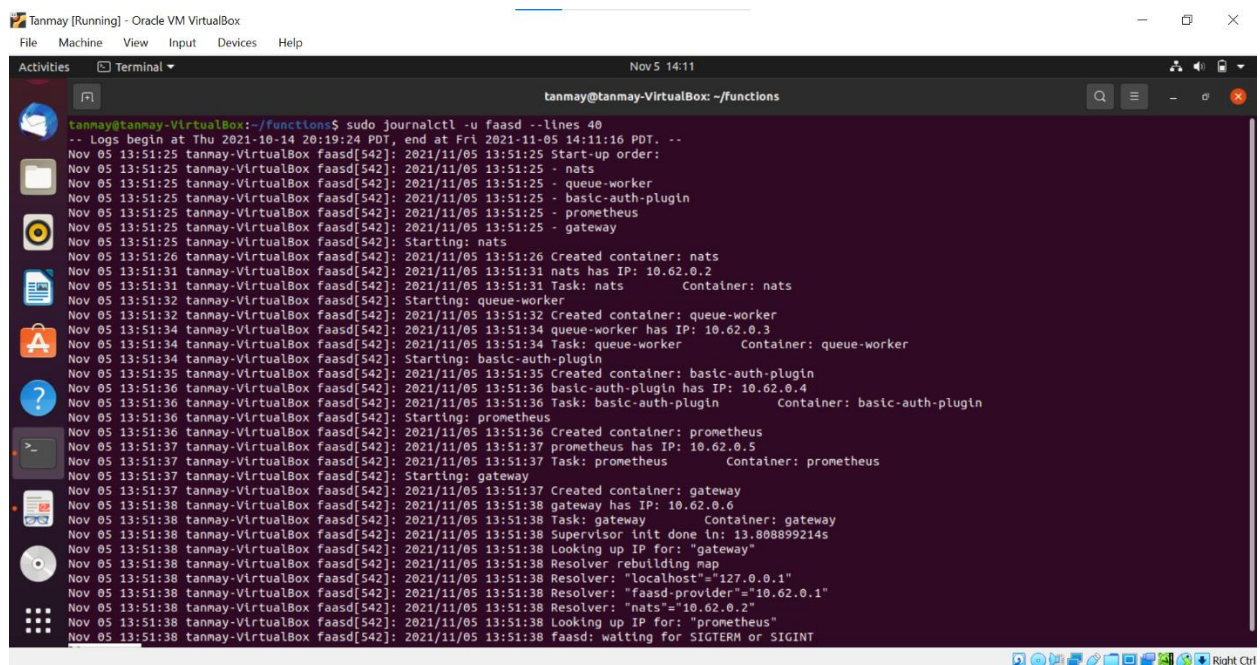
```
Tanmay [Running] - Oracle VM VirtualBox
File Machine View Input Devices Help

Activities Terminal Nov 5 14:08
tanmay@tanmay-VirtualBox: ~/functions

tanmay@tanmay-VirtualBox:~/functions$ echo "Hello, FaaS, world" | faas-cli invoke figlet
Hello FaaS, world

tanmay@tanmay-VirtualBox:~/functions$
```

2.) Screenshot of running sudo journalctl -u faasd --lines 40



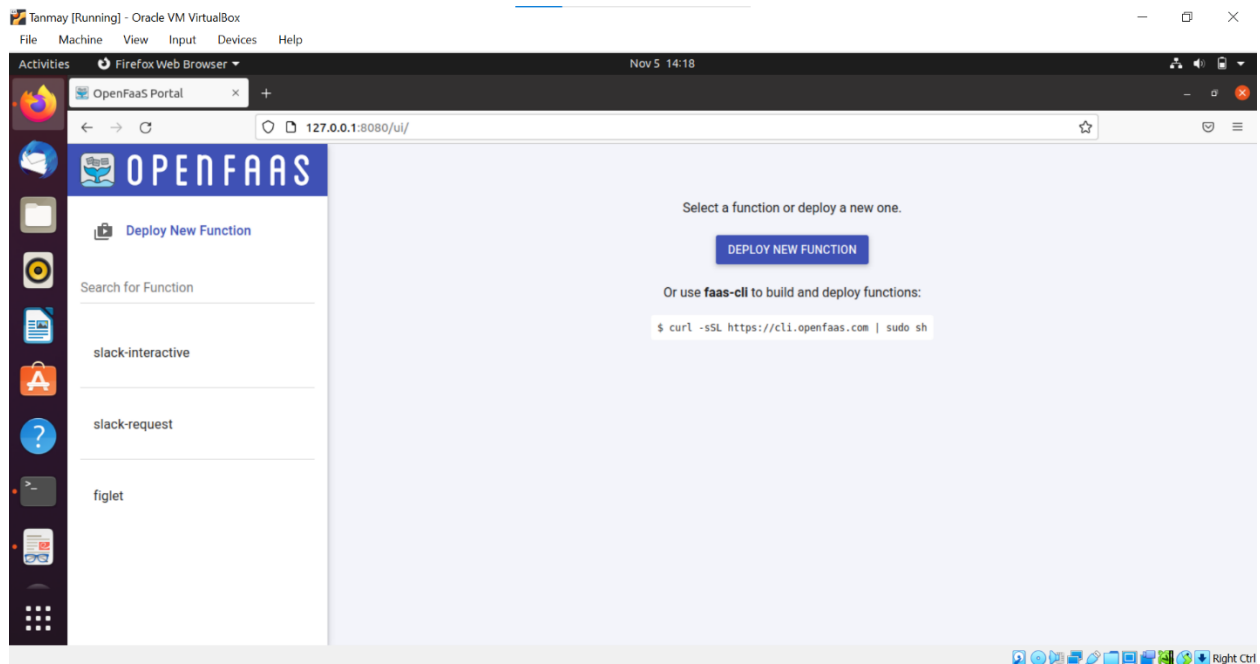
```
Tanmay [Running] - Oracle VM VirtualBox
File Machine View Input Devices Help

Activities Terminal Nov 5 14:11
tanmay@tanmay-VirtualBox: ~/functions

tanmay@tanmay-VirtualBox:~/functions$ sudo journalctl -u faasd --lines 40
-- Logs begin at Thu 2021-10-14 20:19:24 PDT, end at Fri 2021-11-05 14:11:16 PDT. --
Nov 05 13:51:25 tanmay-VirtualBox faasd[542]: 2021/11/05 13:51:25 Start-up order:
Nov 05 13:51:25 tanmay-VirtualBox faasd[542]: 2021/11/05 13:51:25 - nats
Nov 05 13:51:25 tanmay-VirtualBox faasd[542]: 2021/11/05 13:51:25 - queue-worker
Nov 05 13:51:25 tanmay-VirtualBox faasd[542]: 2021/11/05 13:51:25 - basic-auth-plugin
Nov 05 13:51:25 tanmay-VirtualBox faasd[542]: 2021/11/05 13:51:25 - prometheus
Nov 05 13:51:25 tanmay-VirtualBox faasd[542]: 2021/11/05 13:51:25 - gateway
Nov 05 13:51:25 tanmay-VirtualBox faasd[542]: Starting: nats
Nov 05 13:51:26 tanmay-VirtualBox faasd[542]: 2021/11/05 13:51:26 Created container: nats
Nov 05 13:51:31 tanmay-VirtualBox faasd[542]: 2021/11/05 13:51:31 nats has IP: 10.62.0.2
Nov 05 13:51:31 tanmay-VirtualBox faasd[542]: 2021/11/05 13:51:31 Task: nats Container: nats
Nov 05 13:51:32 tanmay-VirtualBox faasd[542]: Starting: queue-worker
Nov 05 13:51:32 tanmay-VirtualBox faasd[542]: 2021/11/05 13:51:32 Created container: queue-worker
Nov 05 13:51:34 tanmay-VirtualBox faasd[542]: 2021/11/05 13:51:34 queue-worker has IP: 10.62.0.3
Nov 05 13:51:34 tanmay-VirtualBox faasd[542]: 2021/11/05 13:51:34 Task: queue-worker Container: queue-worker
Nov 05 13:51:34 tanmay-VirtualBox faasd[542]: Starting: basic-auth-plugin
Nov 05 13:51:35 tanmay-VirtualBox faasd[542]: 2021/11/05 13:51:35 Created container: basic-auth-plugin
Nov 05 13:51:36 tanmay-VirtualBox faasd[542]: 2021/11/05 13:51:36 basic-auth-plugin has IP: 10.62.0.4
Nov 05 13:51:36 tanmay-VirtualBox faasd[542]: 2021/11/05 13:51:36 Task: basic-auth-plugin Container: basic-auth-plugin
Nov 05 13:51:36 tanmay-VirtualBox faasd[542]: Starting: prometheus
Nov 05 13:51:36 tanmay-VirtualBox faasd[542]: 2021/11/05 13:51:36 Created container: prometheus
Nov 05 13:51:37 tanmay-VirtualBox faasd[542]: 2021/11/05 13:51:37 prometheus has IP: 10.62.0.5
Nov 05 13:51:37 tanmay-VirtualBox faasd[542]: 2021/11/05 13:51:37 Task: prometheus Container: prometheus
Nov 05 13:51:37 tanmay-VirtualBox faasd[542]: Starting: gateway
Nov 05 13:51:37 tanmay-VirtualBox faasd[542]: 2021/11/05 13:51:37 Created container: gateway
Nov 05 13:51:38 tanmay-VirtualBox faasd[542]: 2021/11/05 13:51:38 gateway has IP: 10.62.0.6
Nov 05 13:51:38 tanmay-VirtualBox faasd[542]: 2021/11/05 13:51:38 Task: gateway Container: gateway
Nov 05 13:51:38 tanmay-VirtualBox faasd[542]: 2021/11/05 13:51:38 Supervisor init done in: 13.808899214s
Nov 05 13:51:38 tanmay-VirtualBox faasd[542]: 2021/11/05 13:51:38 Looking up IP for: "gateway"
Nov 05 13:51:38 tanmay-VirtualBox faasd[542]: 2021/11/05 13:51:38 Resolver rebuilding map
Nov 05 13:51:38 tanmay-VirtualBox faasd[542]: 2021/11/05 13:51:38 Resolver: "localhost"="127.0.0.1"
Nov 05 13:51:38 tanmay-VirtualBox faasd[542]: 2021/11/05 13:51:38 Resolver: "faasd-provider"="10.62.0.1"
Nov 05 13:51:38 tanmay-VirtualBox faasd[542]: 2021/11/05 13:51:38 Resolver: "nats"="10.62.0.2"
Nov 05 13:51:38 tanmay-VirtualBox faasd[542]: 2021/11/05 13:51:38 Looking up IP for: "prometheus"
Nov 05 13:51:38 tanmay-VirtualBox faasd[542]: 2021/11/05 13:51:38 faasd: waiting for SIGTERM or SIGINT
```

```
Nov 05 13:51:25 tanmay-VirtualBox faasd[542]: 2021/11/05 13:51:25 - gateway
Nov 05 13:51:25 tanmay-VirtualBox faasd[542]: Starting: nats
Nov 05 13:51:26 tanmay-VirtualBox faasd[542]: 2021/11/05 13:51:26 Created container: nats
Nov 05 13:51:31 tanmay-VirtualBox faasd[542]: 2021/11/05 13:51:31 nats has IP: 10.62.0.2
Nov 05 13:51:31 tanmay-VirtualBox faasd[542]: 2021/11/05 13:51:31 Task: nats Container: nats
Nov 05 13:51:32 tanmay-VirtualBox faasd[542]: Starting: queue-worker
Nov 05 13:51:32 tanmay-VirtualBox faasd[542]: 2021/11/05 13:51:32 Created container: queue-worker
Nov 05 13:51:34 tanmay-VirtualBox faasd[542]: 2021/11/05 13:51:34 queue-worker has IP: 10.62.0.3
Nov 05 13:51:34 tanmay-VirtualBox faasd[542]: 2021/11/05 13:51:34 Task: queue-worker Container: queue-worker
Nov 05 13:51:34 tanmay-VirtualBox faasd[542]: Starting: basic-auth-plugin
Nov 05 13:51:35 tanmay-VirtualBox faasd[542]: 2021/11/05 13:51:35 Created container: basic-auth-plugin
Nov 05 13:51:36 tanmay-VirtualBox faasd[542]: 2021/11/05 13:51:36 basic-auth-plugin has IP: 10.62.0.4
Nov 05 13:51:36 tanmay-VirtualBox faasd[542]: 2021/11/05 13:51:36 Task: basic-auth-plugin Container: basic-auth-plugin
Nov 05 13:51:36 tanmay-VirtualBox faasd[542]: Starting: prometheus
Nov 05 13:51:37 tanmay-VirtualBox faasd[542]: 2021/11/05 13:51:37 Created container: prometheus
Nov 05 13:51:37 tanmay-VirtualBox faasd[542]: 2021/11/05 13:51:37 prometheus has IP: 10.62.0.5
Nov 05 13:51:37 tanmay-VirtualBox faasd[542]: 2021/11/05 13:51:37 Task: prometheus Container: prometheus
Nov 05 13:51:37 tanmay-VirtualBox faasd[542]: Starting: gateway
Nov 05 13:51:37 tanmay-VirtualBox faasd[542]: 2021/11/05 13:51:37 Created container: gateway
Nov 05 13:51:38 tanmay-VirtualBox faasd[542]: 2021/11/05 13:51:38 gateway has IP: 10.62.0.6
Nov 05 13:51:38 tanmay-VirtualBox faasd[542]: 2021/11/05 13:51:38 Task: gateway Container: gateway
Nov 05 13:51:38 tanmay-VirtualBox faasd[542]: 2021/11/05 13:51:38 Supervisor init done in: 13.888899214s
Nov 05 13:51:38 tanmay-VirtualBox faasd[542]: 2021/11/05 13:51:38 Looking up IP for: "gateway"
Nov 05 13:51:38 tanmay-VirtualBox faasd[542]: 2021/11/05 13:51:38 Resolver rebuilding map
Nov 05 13:51:38 tanmay-VirtualBox faasd[542]: 2021/11/05 13:51:38 Resolver: "localhost"="127.0.0.1"
Nov 05 13:51:38 tanmay-VirtualBox faasd[542]: 2021/11/05 13:51:38 Resolver: "faasd-provider"="10.62.0.1"
Nov 05 13:51:38 tanmay-VirtualBox faasd[542]: 2021/11/05 13:51:38 Resolver: "nats"="10.62.0.2"
Nov 05 13:51:38 tanmay-VirtualBox faasd[542]: 2021/11/05 13:51:38 Looking up IP for: "prometheus"
Nov 05 13:51:38 tanmay-VirtualBox faasd[542]: 2021/11/05 13:51:38 faasd: waiting for SIGTERM or SIGINT
Nov 05 13:51:38 tanmay-VirtualBox faasd[542]: 2021/11/05 13:51:38 Resolver: "queue-worker"="10.62.0.3"
Nov 05 13:51:38 tanmay-VirtualBox faasd[542]: 2021/11/05 13:51:38 Resolver: "basic-auth-plugin"="10.62.0.4"
Nov 05 13:51:38 tanmay-VirtualBox faasd[542]: 2021/11/05 13:51:38 Resolver: "prometheus"="10.62.0.5"
Nov 05 13:51:38 tanmay-VirtualBox faasd[542]: 2021/11/05 13:51:38 Resolver: "gateway"="10.62.0.6"
Nov 05 13:51:38 tanmay-VirtualBox faasd[542]: 2021/11/05 13:51:38 Proxy from: 127.0.0.1:9090, to: prometheus:9090 (10.62.0.5)
Nov 05 13:51:38 tanmay-VirtualBox faasd[542]: 2021/11/05 13:51:38 Proxy from: 0.0.0.0:8080, to: gateway:8080 (10.62.0.6)
```

3.) Screenshot of OpenFaaS Gateway after deploying figlet, slack-handler and slack-interactive functions:



4.) Screenshot of invoking slack-request and slack-interactive functions:

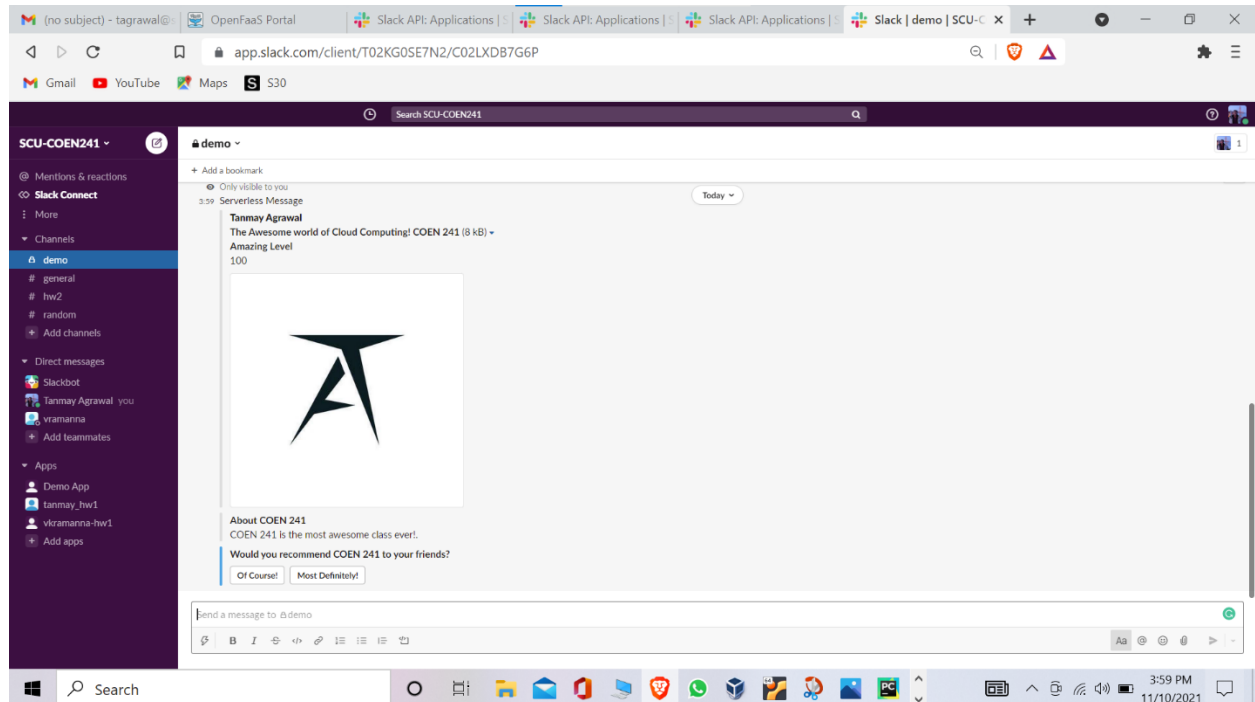
i.) Invoking slack-request via faas-cli and curl:

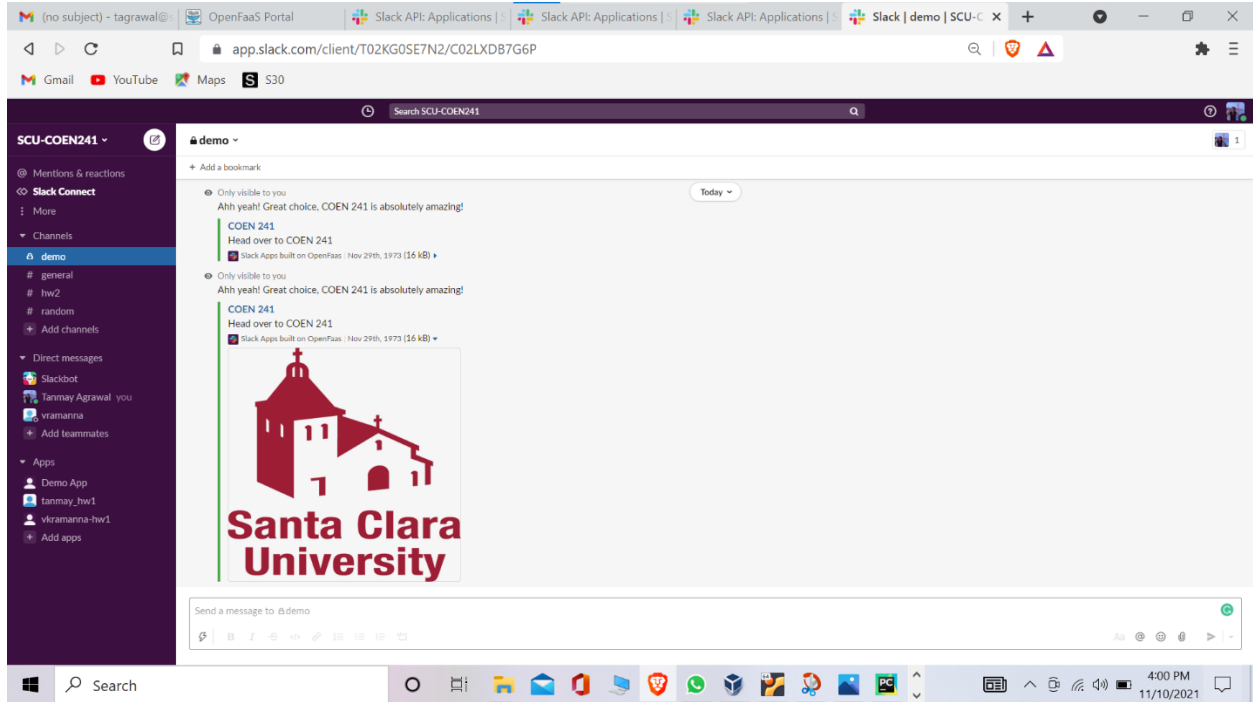
```
tannay@tannay-VirtualBox:~/functions$ faas-cli invoke slack-request
Reading from STDIN - hit (Control + D) to stop.
{"Hello":"COEN 241"}
{"text": "Serverless Message", "attachments": [{"fields": [{"short": true, "value": "100", "title": "Amazing Level"}], "author_icon": "", "image_url": "https://github.com/tannay24497.png", "author_name": "Tannay Agrawal", "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"}]}
tannay@tannay-VirtualBox:~/functions$ curl -d '{"Hello":"COEN 241"}' http://127.0.0.1:8080/function/slack-request
{"text": "Serverless Message", "attachments": [{"fields": [{"short": true, "value": "100", "title": "Amazing Level"}], "author_icon": "", "image_url": "https://github.com/tannay24497.png", "author_name": "Tannay Agrawal", "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"}]}
tannay@tannay-VirtualBox:~/functions$
```

ii.) Invoking slack-interactive via faas-cli and curl:

```
tannay@tannay-VirtualBox:~/functions$ curl -d '{"Hello":"COEN 241"}' http://127.0.0.1:8080/function/slack-interactive
{"attachments": [{"footer": "Slack Apps built on OpenFaaS", "author_link": "https://github.com/tannay24497/ProjectMidTermReview.git", "color": "#36a64f", "text": "Head over to COEN 241", "title": "COEN 241", "ts": 123456789, "author_name": "", "title_link": "https://www.scu.edu/engineering/academic-programs/departments-of-computer-engineering/graduate/course-descriptions/", "image_url": "https://www.scu.edu/media/offices/unc/scu-brand-guidelines/visual-identity-and-photography/visual-identity-toolkit/logos-and-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://github.com/tannay24497.png"}]}
tannay@tannay-VirtualBox:~/functions$ faas-cli invoke slack-interactive
Reading from STDIN - hit (Control + D) to stop.
{"Hello":"COEN 241"}
{"attachments": [{"footer": "Slack Apps built on OpenFaaS", "author_link": "https://github.com/tannay24497/ProjectMidTermReview.git", "color": "#36a64f", "text": "Head over to COEN 241", "title": "COEN 241", "ts": 123456789, "author_name": "", "title_link": "https://www.scu.edu/engineering/academic-programs/departments-of-computer-engineering/graduate/course-descriptions/", "image_url": "https://www.scu.edu/media/offices/unc/scu-brand-guidelines/visual-identity-and-photography/visual-identity-toolkit/logos-and-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://github.com/tannay24497.png"}]}
tannay@tannay-VirtualBox:~/functions$
```

5.) Screenshot of running my application inside slack.





The link to my application is <https://7b8b-129-210-115-227.ngrok.io/ui/>

https://slack.com/oauth/v2/authorize?client_id=2662026483750.2697048294039&scope=incoming-webhook,commands&user_scope=