Задание №8

Вся подготовка и насторойка GitLab и Kubernetes согласно инструкции, в итоге в кластере поднялись все сервисы и поды:

```
alex@host-254 gb $ kubectl cluster-info
Kubernetes control plane is running at https://89.208.222.77:6443
CoreDNS is running at https://89.208.222.77:6443/api/v1/namespaces/kube-system/services/kube-dns:dns/proxy

To further debug and diagnose cluster problems, use 'kubectl cluster-info dump'.
alex@host-254 gb $ kubectl get svc -A
NAMESPACE              NAME                                 TYPE           CLUSTER-IP       EXTERNAL-IP       PORT(S)                      AGE
default                kubernetes                           ClusterIP      10.254.0.1       <none>            443/TCP                      28d
default                prometheus                           ClusterIP      10.254.107.91    <none>            80/TCP                       9d
ingress-nginx          ingress-nginx-controller             LoadBalancer   10.254.172.139   146.185.241.140   80:30080/TCP,443:30443/TCP   28d
ingress-nginx          ingress-nginx-controller-admission   ClusterIP      10.254.80.196    <none>            443/TCP                      28d
ingress-nginx          ingress-nginx-controller-metrics     ClusterIP      10.254.146.180   <none>            9913/TCP                     28d
ingress-nginx          ingress-nginx-default-backend        ClusterIP      10.254.82.17     <none>            80/TCP                       28d
kube-system            calico-node                          ClusterIP      None             <none>            9091/TCP                     28d
kube-system            calico-typha                         ClusterIP      10.254.9.231     <none>            5473/TCP                     28d
kube-system            csi-cinder-controller-service        ClusterIP      10.254.133.252   <none>            12345/TCP                    28d
kube-system            kube-dns                             ClusterIP      10.254.0.10      <none>            53/UDP,53/TCP,9153/TCP       28d
kube-system            metrics-server                       ClusterIP      10.254.17.180    <none>            443/TCP                      28d
kubernetes-dashboard   dashboard-metrics-scraper            ClusterIP      10.254.222.126   <none>            8000/TCP                     28d
kubernetes-dashboard   kubernetes-dashboard                 ClusterIP      10.254.112.247   <none>            443/TCP                      28d
opa-gatekeeper         gatekeeper-webhook-service           ClusterIP      10.254.64.219    <none>            443/TCP                      28d
prod                   database                             ClusterIP      10.254.236.66    <none>            5432/TCP                     7d22h
prod                   geekbrains                           ClusterIP      10.254.10.86     <none>            8000/TCP                     7d22h
stage                  database                             ClusterIP      10.254.209.138   <none>            5432/TCP                     7d22h
stage                  geekbrains                           ClusterIP      10.254.82.173    <none>            8000/TCP                     7d22h
alex@host-254 gb $
```

```
alex@host-254 gb $ kubectl get pod -A
NAMESPACE              NAME                                                       READY   STATUS    RESTARTS
gitlab                 gitlab-runner-64c8dd4c8d-x6mvc                             1/1     Running   0
ingress-nginx          ingress-nginx-controller-6f7b5448b8-65jzx                  1/1     Running   20
ingress-nginx          ingress-nginx-default-backend-546bb687f9-4mc29             1/1     Running   20
kube-system            calico-kube-controllers-7c468dbd74-cmc6s                   1/1     Running   20
kube-system            calico-node-kxg59                                          1/1     Running   49 (3m43s
kube-system            calico-node-pmvlt                                          1/1     Running   49 (3m44s
kube-system            calico-node-vdkq8                                          1/1     Running   20
kube-system            calico-node-xt4k2                                          1/1     Running   53
kube-system            calico-typha-6d5488fff-rhz55                               1/1     Running   20
kube-system            cluster-autoscaler-575db87dcd-phhwm                        1/1     Running   20
kube-system            coredns-d89bd8f8d-jgg5g                                    1/1     Running   20
kube-system            csi-cinder-controllerplugin-0                              6/6     Running   120
kube-system            csi-cinder-nodeplugin-ksrb2                                3/3     Running   63
kube-system            csi-cinder-nodeplugin-v5kg2                                3/3     Running   60
kube-system            csi-cinder-nodeplugin-vhltb                                3/3     Running   63
kube-system            csi-cinder-nodeplugin-wplwm                                3/3     Running   63
kube-system            etcd-kubernetes-cluster-1323-master-0                      1/1     Running   20
kube-system            haproxy-kubernetes-cluster-1323-group-gb-0                 1/1     Running   21
kube-system            haproxy-kubernetes-cluster-1323-group-gb-1                 1/1     Running   21
kube-system            haproxy-kubernetes-cluster-1323-group-gb-2                 1/1     Running   21
kube-system            kube-apiserver-kubernetes-cluster-1323-master-0            1/1     Running   20
kube-system            kube-controller-manager-kubernetes-cluster-1323-master-0   1/1     Running   20
kube-system            kube-proxy-kubernetes-cluster-1323-group-gb-0              1/1     Running   21
kube-system            kube-proxy-kubernetes-cluster-1323-group-gb-1              1/1     Running   21
kube-system            kube-proxy-kubernetes-cluster-1323-group-gb-2              1/1     Running   21
kube-system            kube-proxy-kubernetes-cluster-1323-master-0                1/1     Running   20
kube-system            kube-scheduler-kubernetes-cluster-1323-master-0            1/1     Running   20
kube-system            metrics-server-5d6fb99ff4-br9vd                            1/1     Running   20
kube-system            openstack-cloud-controller-manager-m426f                   1/1     Running   20
kube-system            shell-operator-668bd859f4-h58jd                            1/1     Running   20
kubernetes-dashboard   dashboard-metrics-scraper-6df9f5c47f-rlzsf                 1/1     Running   20
kubernetes-dashboard   kubernetes-dashboard-6548cc6f7d-6sfdh                      1/1     Running   25
opa-gatekeeper         gatekeeper-audit-69cf9b5f78-hzr2d                          1/1     Running   20
opa-gatekeeper         gatekeeper-controller-manager-6bbd487dd7-g8vnj             1/1     Running   20
prod                   database-0                                                 1/1     Running   5
prod                   geekbrains-95dc75b78-n5l4h                                 1/1     Running   5
prod                   geekbrains-95dc75b78-qvp6k                                 1/1     Running   5
stage                  database-0                                                 1/1     Running   5
stage                  geekbrains-95dc75b78-545wp                                 1/1     Running   5
stage                  geekbrains-95dc75b78-r8cjx                                 1/1     Running   5
alex@host-254 gb $
```

Внешний IP 146.185.241.140, проверяем запрос на **stage**:

$ curl 146.185.241.140/users -H "Host: stage" -X POST -d '{"name": "Vasiya", "age": 34, "city": "Vladivostok"}'
{"ID":1,"CreatedAt":"2022-12-23T11:24:08.878442232Z","UpdatedAt":"2022-12-23T11:24:08.878442232Z","DeletedAt":null,"name":"Vasiya","city":"Vladivostok","age":34,"status":false}

$ curl 146.185.241.140/users -H "Host: stage"
[{"ID":1,"CreatedAt":"2022-12-23T11:24:08.878442Z","UpdatedAt":"22022-12-23T11:24:08.878442Z","DeletedAt":null,"name":"Vasiya","city":"Vladivostok","age":34,"status":false}]

По заданию вносим правки:

в kube/deployment.yaml - меняем image: **nginx:1.12** на image: __IMAGE__ ,
в kube/ingress.yaml - меняем значение в **host** на __HOST__ ,

Вносим правки в .gitlab-ci.yml, для деплоя добавляем строки
```
- sed -i  "s,__IMAGE__,$CI_REGISTRY_IMAGE:$CI_COMMIT_REF_SLUG.$CI_PIPELINE_ID,g"kube/deployment.yaml
- sed -i "s,__HOST__,$CI_ENVIRONMENT_NAME,g" kube/ingress.yaml
- kubectl apply -f kube/ --namespace $CI_ENVIRONMENT_NAME
```

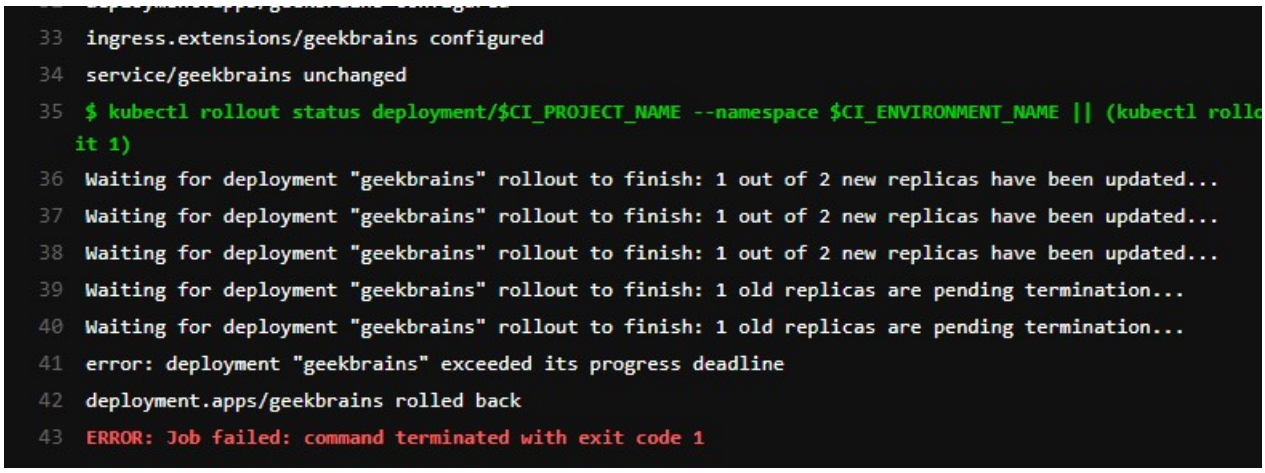
и удаляем строку:
```
- kubectl set image deployment/$CI_PROJECT_NAME *=$CI_REGISTRY_IMAGE:$CI_COMMIT_REF_SLUG.$CI_PIPELINE_ID --namespace $CI_ENVIRONMENT_NAME
```

Заливаем (push) изменения в репозиторий GitLab, проверяем запуск пайплайна, убеждаемся, что приложение работает:

$ curl 146.185.241.140/users -H "Host: stage"
[{"ID":1,"CreatedAt":"2022-12-23T11:24:08.878442Z","UpdatedAt":"2022-12-23T11:24:08.878442Z","DeletedAt":null,"name":"Vasiya","city":"Vladivostok","age":34,"status":false}]

$ curl 146.185.241.140/users -H "Host: prod"
[]

Заменяем значение переменной **DB_HOST** в deployment.yaml на **testerror** и заливаем изменения в репозиторий.
Приложение выдает корректный ответ. Пайплайн ушел в ошибку на этапе deploy и откатился rollback:



После этого приложение продолжает выдавать корректный ответ, все работает, ура!