Part 1 – Node and npm are installed and running correctly.

```
C:\Users\Saira\mycurl>node --version
v6.9.1
C:\Users\Saira\mycurl>node
> console.log('Yay, node.js is installed and running');
Yay, node.js is installed and running
undefined
 .exit
C:\Users\Saira\mycurl>npm --version
3.10.8
C:\Users\Saira\mycurl>npm list -g
C:\Users\Saira\AppData\Roaming\npm
 -- npm-check@5.4.0
 +-- babel-runtime@6.22.0
   +-- core-js@2.4.1
    `-- regenerator-runtime@0.10.1
 +-- callsite-record@3.2.2
   +-- callsite@1.0.0
    +-- error-stack-parser@1.3.6
    | `-- stackframe@0.3.1
    +-- highlight-es@1.0.1
    +-- is-es2016-keyword@1.0.0
      `-- js-tokens@3.0.0
    -- pinkie-promise@2.0.1
     `-- pinkie@2.0.4
   -- chalk@1.1.3
  +-- ansi-styles@2.2.1
   +-- escape-string-regexp@1.0.5
   +-- has-ansi@2.0.0
   +-- strip-ansi@3.0.1
    `-- supports-color@2.0.0
  +-- co@4.6.0
  +-- depcheck@0.6.7
    +-- babel-traverse@6.22.1
    +-- babel-code-frame@6.22.0
      | `-- esutils@2.0.2
     +-- babel-messages@6.22.0
     +-- babel-types@6.22.0
      | `-- to-fast-properties@1.0.2
      +-- debug@2.6.0
     `-- ms@0.7.2
      +-- globals@9.14.0
      `-- invariant@2.2.2
        `-- loose-envify@1.3.1
    +-- babylon@6.15.0
    +-- builtin-modules@1.1.1
    +-- deprecate@1.0.0
    +-- deps-regex@0.1.4
    +-- js-yaml@3.7.0
    +-- argparse@1.0.9
```

```
`-- sprintf-js@1.0.3
     -- esprima@2.7.3
 +-- require-package-name@2.0.1
  +-- walkdir@0.0.11
  -- yargs@6.6.0
   +-- camelcase@3.0.0
    +-- cliui@3.2.0
    | `-- wrap-ansi@2.1.0
    +-- get-caller-file@1.0.2
    +-- os-locale@1.4.0
    | `-- lcid@1.0.0
   | `-- invert-kv@1.0.0
+-- require-directory@2.1.1
   +-- require-main-filename@1.0.1
   +-- set-blocking@2.0.0
   +-- which-module@1.0.0
   +-- y18n@3.2.1
    `-- yargs-parser@4.2.1
   execa@0.2.2
   - cross-spawn-async@2.2.5
   +-- 1ru-cache@4.0.2
    +-- pseudomap@1.0.2
     `-- yallist@2.0.0
     -- which@1.2.12
      `-- isexe@1.1.2
 +-- npm-run-path@1.0.0
 +-- object-assign@4.1.1
 +-- path-key@1.0.0
 `-- strip-eof@1.0.0
-- giturl@1.0.0
   global-modules@0.2.3
   - global-prefix@0.1.5
   +-- homedir-polyfill@1.0.1
   | `-- parse-passwd@1.0.0
`-- ini@1.3.4
   -- is-windows@0.2.0
   globby@4.1.0
 +-- array-union@1.0.2
 | `-- array-uniq@1.0.3
 +-- arrify@1.0.1
 +-- glob@6.0.4
   +-- inflight@1.0.6
| `-- wrappy@1.0.2
+-- inherits@2.0.3
   +-- once@1.4.0
    `-- path-is-absolute@1.0.1
   -- pify@2.3.0
+-- inquirer@0.12.0
 +-- ansi-escapes@1.4.0
 +-- ansi-regex@2.1.1
  +-- cli-cursor@1.0.2
    `-- restore-cursor@1.0.1
     +-- exit-hook@1.1.1
```

```
`-- onetime@1.1.0
  +-- cli-width@2.1.0
  +-- figures@1.7.0
  +-- readline2@1.0.1
    +-- code-point-at@1.1.0
    +-- is-fullwidth-code-point@1.0.0
    `-- number-is-nan@1.0.1
    `-- mute-stream@0.0.5
  +-- run-async@0.1.0
 +-- rx-lite@3.1.2
  +-- string-width@1.0.2
  `-- through@2.3.8
 -- is-ci@1.0.10
| `-- ci-info@1.0.0
+-- lodash@4.17.4
+-- meow@3.7.0
 +-- camelcase-keys@2.1.0
  | `-- camelcase@2.1.1
  +-- decamelize@1.2.0
  +-- loud-rejection@1.6.0
   +-- currently-unhandled@0.4.1
| `-- array-find-index@1.0.2
`-- signal-exit@3.0.2
  +-- map-obj@1.0.1
  +-- minimist@1.2.0
  +-- normalize-package-data@2.3.5
    +-- hosted-git-info@2.1.5
    +-- is-builtin-module@1.0.0
    `-- validate-npm-package-license@3.0.1
      +-- spdx-correct@1.0.2
      | `-- spdx-license-ids@1.2.2
`-- spdx-expression-parse@1.0.4
  +-- read-pkg-up@1.0.1
     -- read-pkg@1.1.0
      +-- load-json-file@1.1.0
| `-- strip-bom@2.0.0
          `-- is-utf8@0.2.1
      `-- path-type@1.1.0
  +-- redent@1.0.0
    +-- indent-string@2.1.0
    `-- strip-indent@1.0.1
      `-- get-stdin@4.0.1
   -- trim-newlines@1.0.0
  - merge-options@0.0.64
| `-- is-plain-obj@1.1.0
  - minimatch@3.0.3
  `-- brace-expansion@1.1.6
    +-- balanced-match@0.4.2
    `-- concat-map@0.0.1
  - node-emoji@1.5.1
  `-- string.prototype.codepointat@0.2.0
  - ora@0.2.3
  `-- cli-spinners@0.1.2
```

```
package-json@2.4.0
   -- got@5.7.1
    +-- create-error-class@3.0.2
    | `-- capture-stack-trace@1.0.0
+-- duplexer2@0.1.4
    +-- is-redirect@1.0.0
    +-- is-retry-allowed@1.1.0
    +-- is-stream@1.1.0
    +-- lowercase-keys@1.0.0
    +-- node-status-codes@1.0.0
    +-- parse-json@2.2.0
    `-- error-ex@1.3.0
        `-- is-arrayish@0.2.1
    +-- read-all-stream@3.1.0
    +-- readable-stream@2.2.2
     +-- buffer-shims@1.0.0
      +-- core-util-is@1.0.2
     +-- isarray@1.0.0
     +-- process-nextick-args@1.0.7
      +-- string_decoder@0.10.31
     `-- util-deprecate@1.0.2
    +-- timed-out@3.1.3
    +-- unzip-response@1.0.2
    `-- url-parse-lax@1.0.0
      `-- prepend-http@1.0.4
  +-- registry-auth-token@3.1.0
   `-- rc@1.1.6
      +-- deep-extend@0.4.1
      `-- strip-json-comments@1.0.4
   -- registry-url@3.1.0
+-- path-exists@2.1.0
  - pkg-dir@1.0.0
 `-- find-up@1.1.2
+-- semver@5.3.0
+-- semver-diff@2.1.0
+-- text-table@0.2.0
+-- throat@2.0.2
-- update-notifier@0.6.3
   -- boxen@0.3.1
   +-- filled-array@1.1.0
   +-- repeating@2.0.1
   | `-- is-finite@1.0.2
`-- widest-line@1.0.0
  +-- configstore@2.1.0
    +-- dot-prop@3.0.0
    | `-- is-obj@1.0.1
    +-- graceful-fs@4.1.11
    +-- mkdirp@0.5.1
    | `-- minimist@0.0.8
    +-- os-tmpdir@1.0.2
    +-- osenv@0.1.4
    | `-- os-homedir@1.0.2
    +-- uuid@2.0.3
    +-- write-file-atomic@1.3.1
    +-- imurmurhash@0.1.4
      `-- slide@1.1.6
     -- xdg-basedir@2.0.0
  +-- is-npm@1.0.0
  `-- latest-version@2.0.0
```

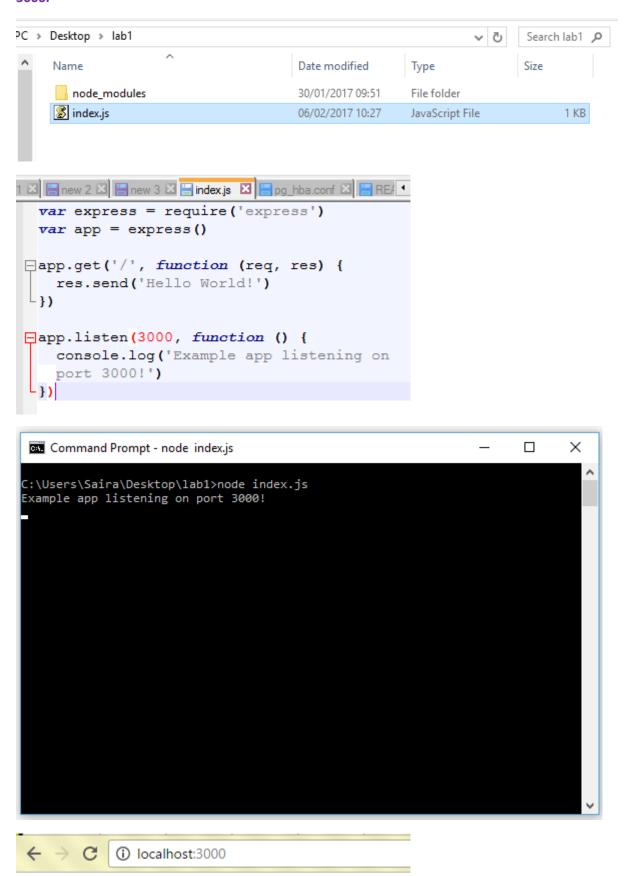
Lab 1 Saira Barlas C12809080

```
Nodejs command prompt

Your environment has been set up for using Node.js 6.9.1 (x64) and npm.

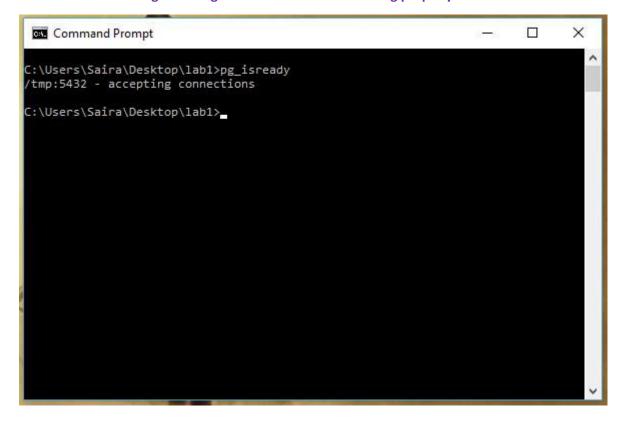
C:\Users\Saira>
```

Part 2 – Express is installed and 'index.js' is created in 'lab1' folder. Endpoint responds to the port 3000.

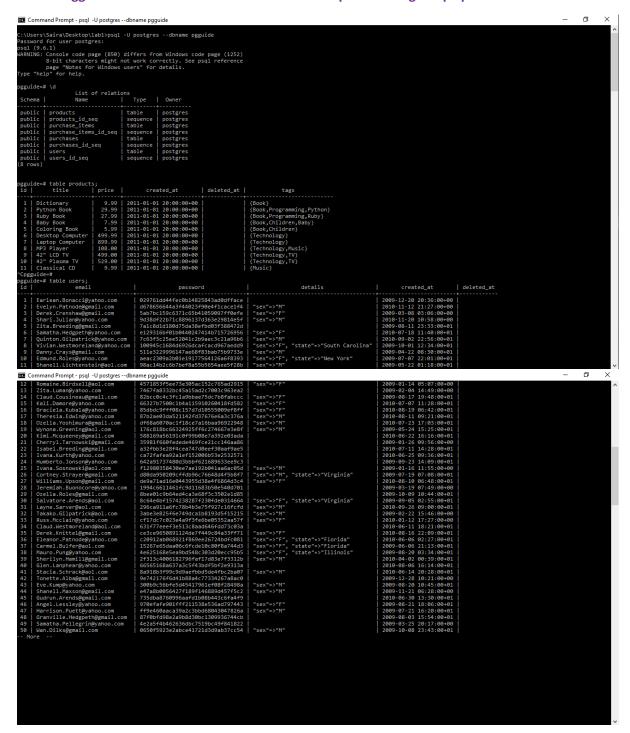


Hello World!

Part 3 – Installed Postgres. Postgres server instance is working properly.



Part 4 - Pgguide database loaded. The database is inspected using the psql client as shown.



Part 5 – Massive JS is installed. Pgguide is accessed using Massive; the tables 'users', 'products', 'purchases' and 'purchase items' can be viewed using the following 'app.js' code as shown.

```
🗵 🔚 new 2 🗵 🗎 new 3 🗵 🗎 new 4 🗵 📙 index.js 🗵 🗎 app.js 🗵 📔 app2.js 🗵
 var Massive = require("massive")
   , http = require("http")
   , express = require("express")
   , app = express();
 /* database config */
 var connectionString = "
 postgres://postgres:Saadat123@localhost/pgguide";
 var db = Massive.connectSync({connectionString :
 connectionString });
 /* users table */
db.users.find(function(err,res){
     console.log(res);
L});
 /* products table */
db.products.find(function(err,res) {
  console.log(res);
└});
 /* purchases table */
db.purchases.find(function(err,res){
  console.log(res);
└});
 /* purchase items table */
db.purchase items.find(function(err,res){
  console.log(res);
\});
 /* listen on port 3000 */
 var server = http.createServer(app);
 server.listen(3000);
```

The following is what is shown when the app.js code is run to view all the tables at <u>once</u>. As the command prompt doesn't allow full scrolling, this is what is shown for all the tables.

```
Command Prompt - node appjis

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```

The following is shown when the table code is run separately for each table.

Users Table Code:

```
    □ new 2    □ new 3    □ new 4    □ index.js    □ app.js    □ app2.js    □ app
      var Massive = require("massive")
              , http = require("http")
              , express = require("express")
               , app = express();
      /* database config */
      var connectionString = "
      postgres://postgres:Saadat123@localhost/pgguide";
      var db = Massive.connectSync({connectionString :
      connectionString );
     /* users table */
db.users.find(function(err,res) {
                    console.log(res);
  });
⊟/* products table
     db.products.find(function(err,res){
           console.log(res);
  L<sub>}</sub>); */
⊟/* purchases table
     db.purchases.find(function(err,res){
         console.log(res);
  L}); */
□/* purchase items table
      db.purchase items.find(function(err,res) {
        console.log(res);
   L<sub>}</sub>); */
     /* listen on port 3000 */
     var server = http.createServer(app);
      server.listen(3000);
```

Users Table Output:

Products Table Code:

```
■ new 2 🗵 🗎 new 3 🗵 🗎 new 4 🗵 🔡 index.js 🗵 🔛 app.js 🗵 🛗 app2.js 🗵
 var Massive = require("massive")
    , http = require("http")
    , express = require("express")
    , app = express();
 /* database config */
 var connectionString = "
 postgres://postgres:Saadat123@localhost/pgguide";
 var db = Massive.connectSync({connectionString :
 connectionString );
db.users.find(function(err,res){
    console.log(res);
L}); */
 /* products table */
db.products.find(function(err,res) {
 console.log(res);
\});
⊟/* purchases table
 db.purchases.find(function(err,res){
  console.log(res);
L<sub>}</sub>); */
□/* purchase items table
 db.purchase items.find(function(err,res){
  console.log(res);
 L<sub>}</sub>); */
 /* listen on port 3000 */
 var server = http.createServer(app);
 server.listen(3000);
```

Products Table Output:

```
Command Prompt - node appjs

C: Ulser*!Lasira*!mycurl:node app,5

(annymous {
    its | Oft-tionary*,
        price ' 9.99*,
        created_at: 2011-0-01720:00:00.0002,
    obletd_at: null,
    annymous {
    its | Oft-tionary*,
        price ' 19.99*,
    created_at: 2011-0-01720:00:00.0002,
    obletd_at: null,
    annymous {
    its | Oft-tionary*,
        price ' 19.99*,
    annymous {
    its | Oft-tionary*,
        price ' 19.99*,
    its | Oft-tionary*,
    its | Oft-tionar
```

```
S Command Numeric and appjo

title: 'Mpi Player'
price: '200.000',
created_st: 2011-01-01720:00:000,0002,
created_st: 2011-01-01720:00:000,0002,
stags: ['Rechoolagy', 'Music']),
snonymous {
    its: '22' LCD 'V',
    price: '399.00',
    created_st: 2011-01-01720:00:00,0002,
    tags: ['Rechoolagy', 'TV']),
snonymous {
    its: '22' Plane N',
    price: '290.00',
    created_st: 2011-01-01720:00:00,0002,
    deleted_st: null,
    tags: ['Nusic']),
    snonymous {
    ititle: 'Nouliay O',
    price: '90.00',
    price:
```

Purchases Table Code:

```
var Massive = require("massive")
   , http = require("http")
   , express = require("express")
   , app = express();
 /* database config */
 var connectionString = "
 postgres://postgres:Saadat123@localhost/pgguide";
 var db = Massive.connectSync({connectionString :
 connectionString });
db.users.find(function(err,res){
    console.log(res);
L<sub>}</sub>); */
⊟/* products table
 db.products.find(function(err,res){
  console.log(res);
L}); */
 /* purchases table */
db.purchases.find(function(err,res) {
 console.log(res);
\});
□/* purchase items table
 db.purchase items.find(function(err,res){
  console.log(res);
L<sub>}</sub>); */
 /* listen on port 3000 */
 var server = http.createServer(app);
 server.listen(3000);
```

Purchases Table Output:

```
Command Prompt - node appig

crasted at: 2811-11-2419-35-00,0002,

address: 1281-11-2419-35-00,0002,

state: "Wa.",

state: "St.",

state: "S
```

Purchase Items Table Code:

```
■ new 2 🗵 🗎 new 3 🗵 🗎 new 4 🗵 🔡 index.js 🗵 🔛 app.js 🗵 📇 app2.js 🗵
 var Massive = require("massive")
    , http = require("http")
    , express = require("express")
    , app = express();
 /* database config */
 var connectionString = "
 postgres://postgres:Saadat123@localhost/pgguide";
 var db = Massive.connectSync({connectionString :
 connectionString );
db.users.find(function(err,res){
    console.log(res);
L}); */
⊟/* products table
 db.products.find(function(err,res){
  console.log(res);
L}); */
⊟/* purchases table
 db.purchases.find(function(err,res){
  console.log(res);
L<sub>}</sub>); */
 /* purchase items table */
db.purchase items.find(function(err,res) {
  console.log(res);
L});
 /* listen on port 3000 */
 var server = http.createServer(app);
 server.listen(3000);
```

Purchase Items Table Output:

```
Temmand Prompt node appjs

product_16189

price: [14,99*,
quantity* 4,
state: "Delivered"),
state: "Seturned"),
state
```

```
## Command Strompt - node appja

## articles 19999;

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## annoym
```

```
23 Command Prompt-node app js

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Command Prompt-node appja

cushtty: 1

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id: 95, product id: 15, price: '9.99', cushtty: 1, price: '9.99', cushtty: 1, price: '9.99', cushtty: 1, price: '9.99', cushty: 2, price: '9.99', cushty: 1, price
```

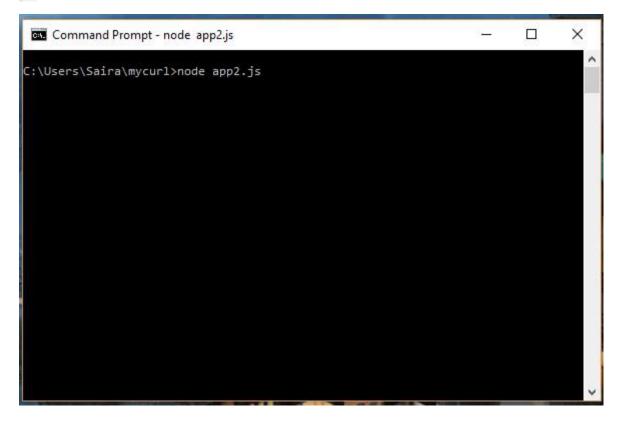
Part 6 – Node, Express and Massive are altogether used to produce the following HTTP API Endpoints which generate the following JSON documents.

Code in 'app2.js' file was used to display all the endpoints.

Code:

```
    □ new 2   □ new 3   □ new 4   □ index.js   □ app.js   □ app2.js   □ app2
     var Massive = require("massive")
            , http = require("http")
             , express = require("express")
             , app = express();
     /* database config */
     var connectionString = "
     postgres://postgres:Saadat123@localhost/pgguide";
     var db = Massive.connectSync({connectionString :
     connectionString );
     /* http routes */
     /* GET /users ==> List all Users */
□app.get("/pgguide/users", function(req, res) {
                  db.users.find(function(err,data){
                                res.send(data);
                  });
  L});
     /* GET /users/:id ==> List the User with ID 25 */
□app.get("/pgguide/users/:id", function(req, res) {
               db.users.find({id:25}, function(err,data){
                                res.send(data);
                  });
  L});
     /* GET /products ==> List all Products */
□app.get("/pgguide/products", function(req, res) {
                  db.products.find(function(err,data){
                                res.send(data);
                  });
  \});
    /* GET /products/:id ==> List the Product with ID 7 */
```

```
papp.get("/pgguide/products/:id", function(req, res) {
    db.products.find({id:7}, function(err.data) {
          res.send(data);
      });
\});
 /* GET /purchases ==> List all Purchases */
□app.get("/pgguide/purchases", function(req, res) {
     db.purchases.find(function(err,data){
          res.send(data);
      });
L});
 /* GET /purchases/:id ==> List the Purchase with ID 21 */
□app.get("/pgguide/purchases/:id", function(req, res) {
      db.purchases.find({id:21}, function(err,data){
         res.send(data);
      });
└});
 /* listen on port 3000 */
 var server = http.createServer(app);
 server.listen(3000);
```



GET /users output:



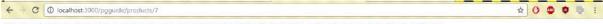
GET /users/:id (of ID 25)



GET /products

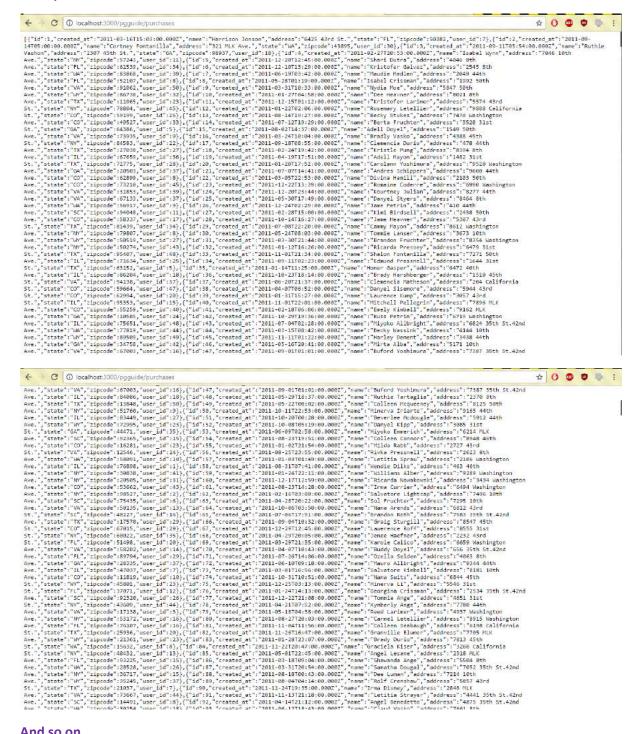


GET /products/:id (of ID 7)



[{"id":7,"title":"Laptop Computer","price":"899.99","created_at":"2011-01-0170:00:00.00.002","deleted_at":null,"tags":["Technology"]}]

GET /purchases



And so on

GET /purchases/:id (of ID 21)

