

Image 1: Old design database

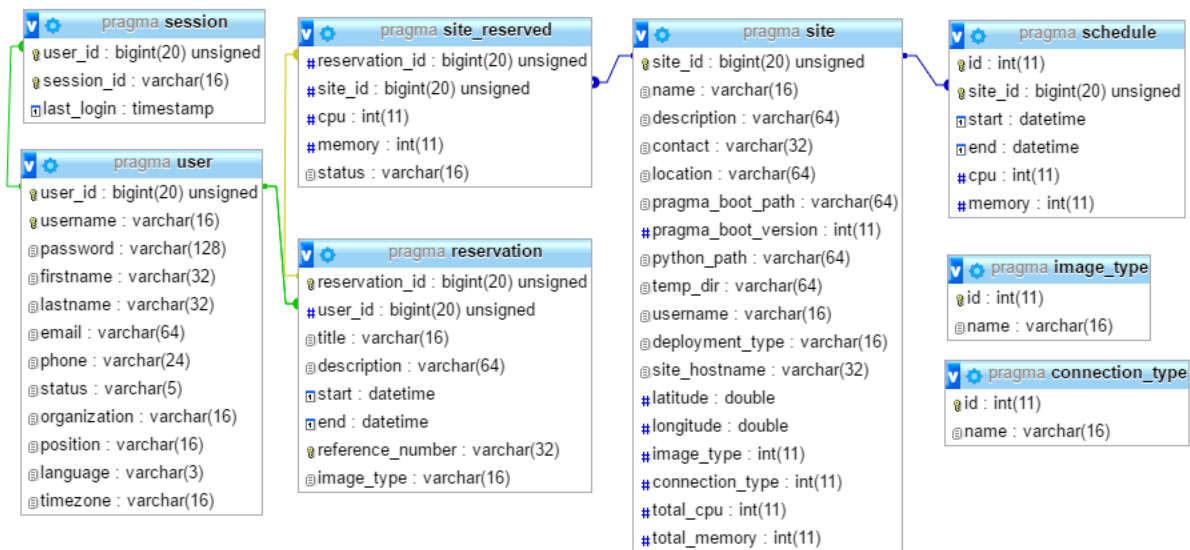


Image 2: New design database

id	name
1	IPOP
2	ENT

Image 3: 'Connection type' table

latitude	longitude	image_type	connection_type	total_cpu	total_memory
36.060839	140.137303	1	1	32	64
24.81383	120.967475	2	2	128	32
24.81383	120.967475	5	3	64	64

1 = 1 -> IPOP  
2 = 10 -> ENT  
3 = 11 -> IPOP and ENT

Image 4: 'site' table

id	name
1	centOS7
2	hku_biolinux
3	nchc-sge-test
4	rocks-basic
5	rocks-age

Image 5: 'Image type' table

Example : 9 = 1001 = centOS7 and rocks-basic

id	site_id	start	end	cpu	memory
21	2	2017-02-09 00:00:00	2017-02-09 01:00:00	8	4

Image 6: 'schedule' table

$$Id = 2+0+1+7+0+2+0+9+0+0+0 = 21$$

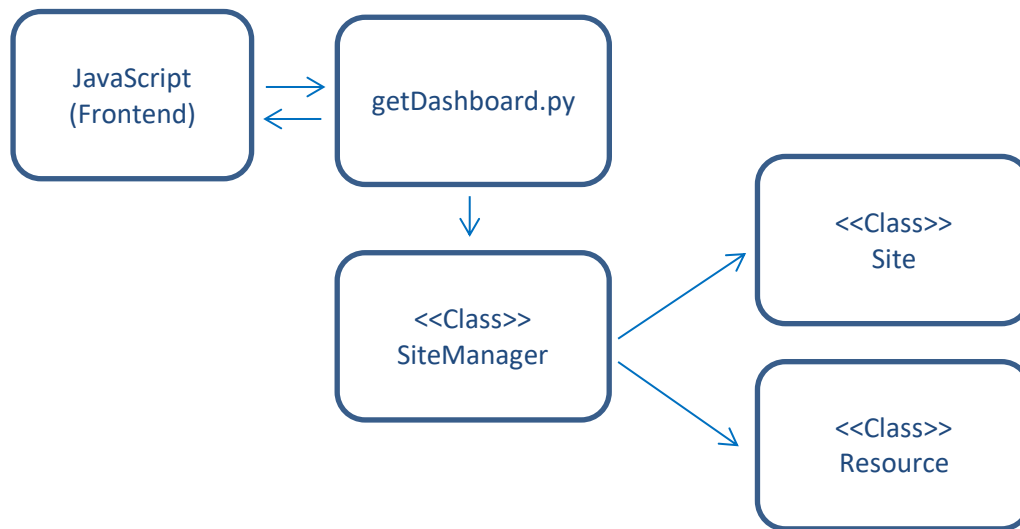


Image 7 : Diagram for task "Dashboard"

```

15
16 from SiteManager import SiteManager
17
18 siteManager = SiteManager()
19 sites = siteManager.getAllSites()
20

```

Image 8 : "getDashboard.py"

```

19 class SiteManager:
20
21     __sites = []
22
23     def __init__(self):
24         self.__sites = []
25
26     def getAllSites(self):
27         db = Database()
28         if db.connect():
29             db.execute("SELECT * FROM `site`")
30             data = db.getCursor().fetchall()
31             for d in data:
32                 site = Site(d[0],d[1],d[2],d[3],d[4],d[5],d[6],d[7],d[8],d[9],d[10],d[11],d[12],d[13],d[14],d[15])
33
34                 site.addResource(Resource(d[16],"CPU"))
35                 site.addResource(Resource(d[17],"memory"))
36
37                 self.__sites.append(site)
38
39             return self.__sites
40         else:
41             return None

```

Image 9 : class "SiteManager"

```

12
13 class Resource:
14     __total = None
15     __type = None
16     __availableAmount = None
17
18     def __init__(self, total=None, typ=None, availAmount=None):
19         self.__total = total
20         self.__type = typ
21         self.__availableAmount = availAmount
22
23     def setTotal(self, total):
24         self.__total = total
25
26     def getTotal(self):
27         return self.__total
28
29     def setType(self, t):
30         self.__type = t
31
32     def getType(self):
33         return self.__type
34

```

Image 10 : class "Resource"

```

def getDeploymentType(self):
    return self.__deployment_type

def getSiteHostname(self):
    return self.__site_hostname

def getLatitude(self):
    return self.__latitude

def getLongitude(self):
    return self.__longitude

def getImageTypeId(self):
    return self.__image_type_id

def getImageType(self):
    imgBinary = "{0:b}".format(int(self.__image_type_id))
    imgBinaryReverse = imgBinary[::-1]

    i=1
    db = Database()

    if db.connect() :

        for c in imgBinaryReverse:
            if int(c) != 0:
                sql = "SELECT `name` FROM `image_type` WHERE `id` = "+str(i)+";"
                if db.execute(sql) :
                    imageType = db.fetchone()[0]
                    if imageType!=None:
                        self.__image_types.append(imageType)

            i=i+1

    db.close()

    return self.__image_types

```

Image 11 : class "Site"

```

{
  "amount": "4",
  "sites": [{
    "id": "2",
    "name": "AIST Cloud",
    "description": "Cloudstack. Hosting Virtual clusters and virtual machines.",
    "contact": "jh.haga@aist.go.jp",
    "location": "Cloudstack. Hosting Virtual clusters and virtual machines.",
    "pragma_boot_path": "/home/ssmallen/pragma_boot",
    "pragma_boot_version": "2",
    "python_path": "-",
    "temp_dir": "/home/ssmallen/pcc",
    "username": "ssmallen",
    "deployment_type": "Rocks KVM",
    "site_hostname": "163.220.54.102",
    "latitude": "36.060839",
    "longitude": "140.137303",
    "image_type": [{
      "name": "centOS7"
    }],
    "connection_type": [{
      "name": "IPOP"
    }],
    "total_CPU": "32",
    "total_memory": "64"
  }, {
    "id": "3",
    "name": "NCHC cloud",
    "description": "Rocks. Hosting virtual clusters and virtual machines",
    "contact": "serenapan@nchc.narl.org.tw",
    "location": "National Center for High-Performance Computing",
    "pragma_boot_path": "/opt/pragma_boot",
    "pragma_boot_version": "2",
    "python_path": "/opt/pragma_boot",
    "temp_dir": "/var/run/pcc",
    "username": "root",
    "deployment_type": "Rocks KVM",
    "site_hostname": "pragma.nchc.org.tw",
    "latitude": "24.81383",
    "longitude": "120.967475",
    "image_type": [{
      "name": "hku_biolinux"
    }],
    "connection_type": [{
      "name": "ENT"
    }],
    "total_CPU": "128",
    "total_memory": "32"
  }
}]
}

```

**Image 12** : information of all sites in JSON format