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CLPS_Crawl_Seek

1. How to run the program

```
java -jar CLPS_Crawl_Seek.jar <PLACE>
```

<PLACE> can be **ALL ACT NEW NT QLD SA TAS VIC WA**

FOR EXAMPLE:

```
java -jar CLPS_Crawl_Seek.jar ALL
```

ALL means seek data from all of the states,

And the other words mean seeking data from specific state.

2. Configuration file

The name of the configuration file must be **TheBasicDetails.csv**

	A	B	C	D	E	F	G	H	I	J	K	L
1	jobLinks	/home/testuser302/Peter_Yang/Links_ALL.csv										
2	jobDetails	/home/testuser302/Peter_Yang/Details_ALL.csv										
3	databaseURL	jdbc:mysql://rm-3ns2h1u05swb1nw4mo.mysql.rds.aliyuncs.com:3306?useLegacyDatetimeCode=false&serverTimezone=UTC&useSSL=false										
4	username	crawler										
5	password	C123456@										
6	phantomjs	/opt/phantomjs-2.1.1-linux-x86_64/bin/phantomjs										
7	deletePrevious	yes										
8	database	seekcrawler										

jobLink: The direction of the file which contains the websites' Links

jobDetail: The direction of the file which contains the websites' Details

databaseURL: The information and address of the database you want to input data in

username: The name of you in that database

password: Your password

phantomjs: The directory of the phantomjs

deletePrevious: yes means you will delete all of the previous data in that database

database: The scheme that you will use in that database

3. The program

3.1 All of the classes the program includes:

Main

HandleCSV

Crawl_Link

EachState

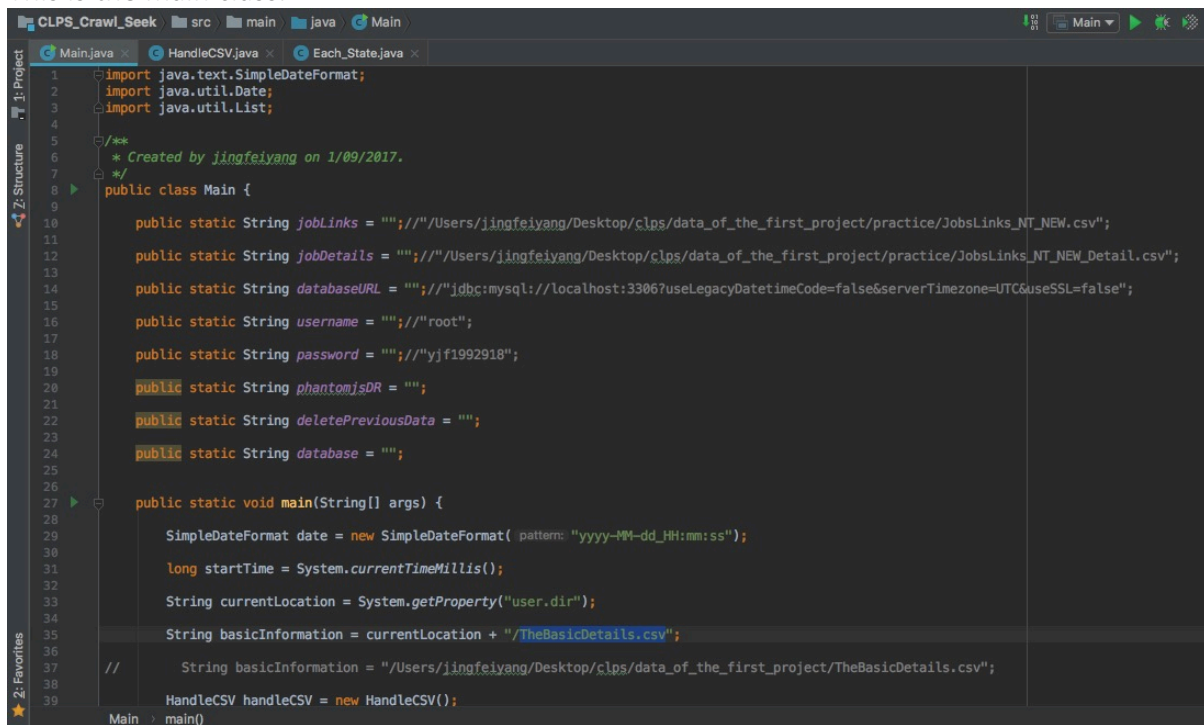
Crawl_Details

HandleDatabase

3.2 Each class

3.2.1 Main

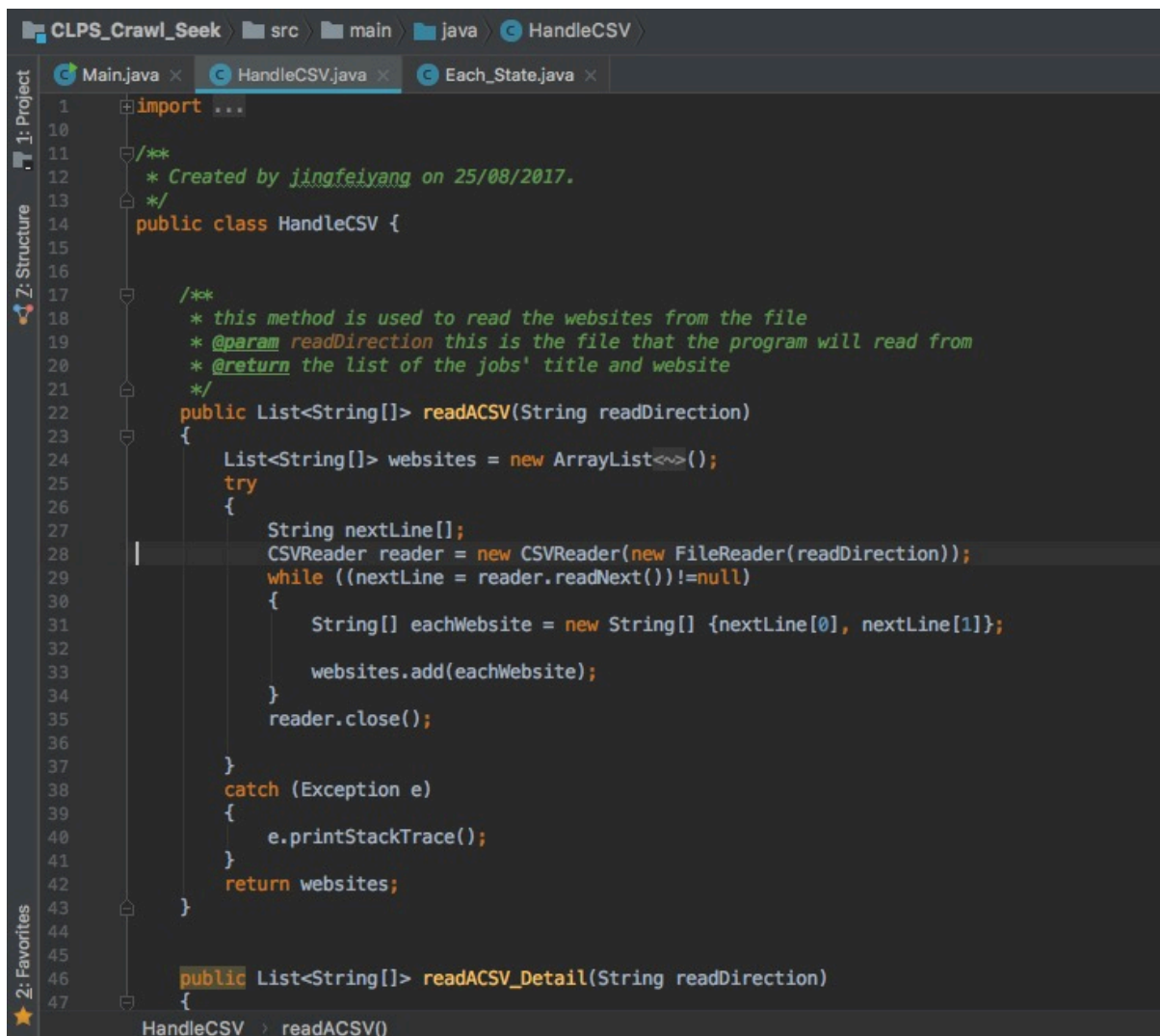
This is the main class.



```
1 import java.text.SimpleDateFormat;
2 import java.util.Date;
3 import java.util.List;
4
5 /**
6  * Created by jingfeiyang on 1/09/2017.
7  */
8 public class Main {
9
10     public static String jobLinks = ""; //"/Users/jingfeiyang/Desktop/clps/data_of_the_first_project/practice/JobLinks_NT_NEW.csv";
11     public static String jobDetails = ""; //"/Users/jingfeiyang/Desktop/clps/data_of_the_first_project/practice/JobLinks_NT_NEW_Detail.csv";
12     public static String databaseURL = ""; //jdbc:mysql://localhost:3306?useLegacyDatetimeCode=false&serverTimezone=UTC&useSSL=false";
13     public static String username = ""; //root";
14     public static String password = ""; //yjf1992918";
15     public static String phantomjsDR = "";
16     public static String deletePreviousData = "";
17     public static String database = "";
18
19     public static void main(String[] args) {
20         SimpleDateFormat date = new SimpleDateFormat( pattern: "yyyy-MM-dd_HH:mm:ss");
21         long startTime = System.currentTimeMillis();
22         String currentLocation = System.getProperty("user.dir");
23         String basicInformation = currentLocation + "/TheBasicDetails.csv";
24         // String basicInformation = "/Users/jingfeiyang/Desktop/clps/data_of_the_first_project/TheBasicDetails.csv";
25         HandleCSV handleCSV = new HandleCSV();
26     }
27 }
```

3.2.2 HandleCSV

This class is used to handle the CSV file



```
1  import ...
10
11  /**
12   * Created by jingfeiyang on 25/08/2017.
13   */
14  public class HandleCSV {
15
16
17      /**
18       * this method is used to read the websites from the file
19       * @param readDirection this is the file that the program will read from
20       * @return the list of the jobs' title and website
21       */
22      public List<String[]> readACSV(String readDirection)
23      {
24          List<String[]> websites = new ArrayList<>();
25          try
26          {
27              String nextLine[];
28              CSVReader reader = new CSVReader(new FileReader(readDirection));
29              while ((nextLine = reader.readNext()) != null)
30              {
31                  String[] eachWebsite = new String[] {nextLine[0], nextLine[1]};
32                  websites.add(eachWebsite);
33              }
34              reader.close();
35          }
36          catch (Exception e)
37          {
38              e.printStackTrace();
39          }
40          return websites;
41      }
42
43      public List<String[]> readACSV_Detail(String readDirection)
44      {
45
46      }
47  }
```

readACSV is used to read the link file and the basic file

readACSV_Detail is used to read the detail file

writeACSV is used to write the data to csv file

3.2.3 Crawl_Link

This class is used to seek each job and its websites

```

1  import ...
13
14  /**
15   * @author Jingfei Yang
16   *
17   * This class includes the methond to get the job name and website of the job
18   * Created by jingfeiyang on 25/08/2017.
19   */
20  public class Crawl_Link {
21
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31
32      String writeDirection = "";
33      String phantomjsdriver = "";
34
35      /**
36       * This is the method that used to get the link information from the website
37       * <p>
38       * This method will get the name of the job and the website of this job
39       * And the results will be written to a csv file
40       * @param website the website that this class will get links from
41       */
42      public Boolean Crawlit(String website)
43      {
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```

The crawl driver this class uses is phantomjs

The data this class has got will be written to link file

3.2.4 Each_State

This class is about getting data from different states

```

1  public class Each_State {
2
3      public Crawl_Link Seek_link;
4
5      public Each_State(Crawl_Link Seek_link) { this.Seek_link = Seek_link; }
6
7
8
9
10
11
12      public void runACT()
13      {
14          /**
15           * run ACT
16           */
17          Boolean runACT = true;
18          int iACT = 1;
19          while (runACT) {
20              runACT = Seek_link.Crawlit( website: "https://www.seek.com.au/jobs-in-information-communication-technology/in-ACT?page=" + iACT);
21              iACT++;
22
23              try {
24                  if (iACT % 10 == 0) {
25                      Thread.sleep( millis: 1000);
26                      System.out.println("have a reset sleep, ACT");
27                  }
28              } catch (Exception et) {
29                  System.out.println("iact sleep");
30                  et.printStackTrace();
31              }
32          }
33
34
35
36      public void runNSW()
37      {
38          /**
39           * run NSW
40           */
41          Boolean runNSW = true;
42          int iNSW = 1;
43          while (runNSW)

```

The construtor method is

```
public Each_State(Crawl_Link Seek_link)
{
    this.Seek_link = Seek_link;
}
```

Seek_Link must be an object of Crawl_Link

And to avoid making the cpu handling too much data, the program will sleep 1000 millis per 10 website pages

3.2.5 Crawl_Deatils

This is the class to catch the details of each job

```
import java.util.List;

/**
 * @author Jingfei Yang
 * Created by jingfeiyang on 25/08/2017.
 * This class is used to get the detailed information of each job, and then write it in a CSV file
 */
public class Crawl_Details {

    String writeDirection = "";

    public void CrawlUseHtmlUnit(List<String[]> Websites)
    {
        /**
         * generating an object of the HandleCSV
         */
        HandleCSV handleCSV = new HandleCSV();

        /**
         * This is the direction that the information will write to
         */
        // writeDirection = "/Users/jingfeiyang/Desktop/clps/data_of_the_first_project/practice/JobsDetails_NT_PRACTICE_2.csv";

        /**
         * Handle each link and get its detailed information
         */
        int count = 1;

        for(String Website[] : Websites)
        {
            String jobTitle = Website[0];
            String newJobtitle = "null";
            String location = "null";
            String salary = "0";
            String phone = "0000000000";
            String email = "0000000000";
            String JD = "null";
        }
    }
}
```

The crawl driver this class uses is HtmlUnitDriver

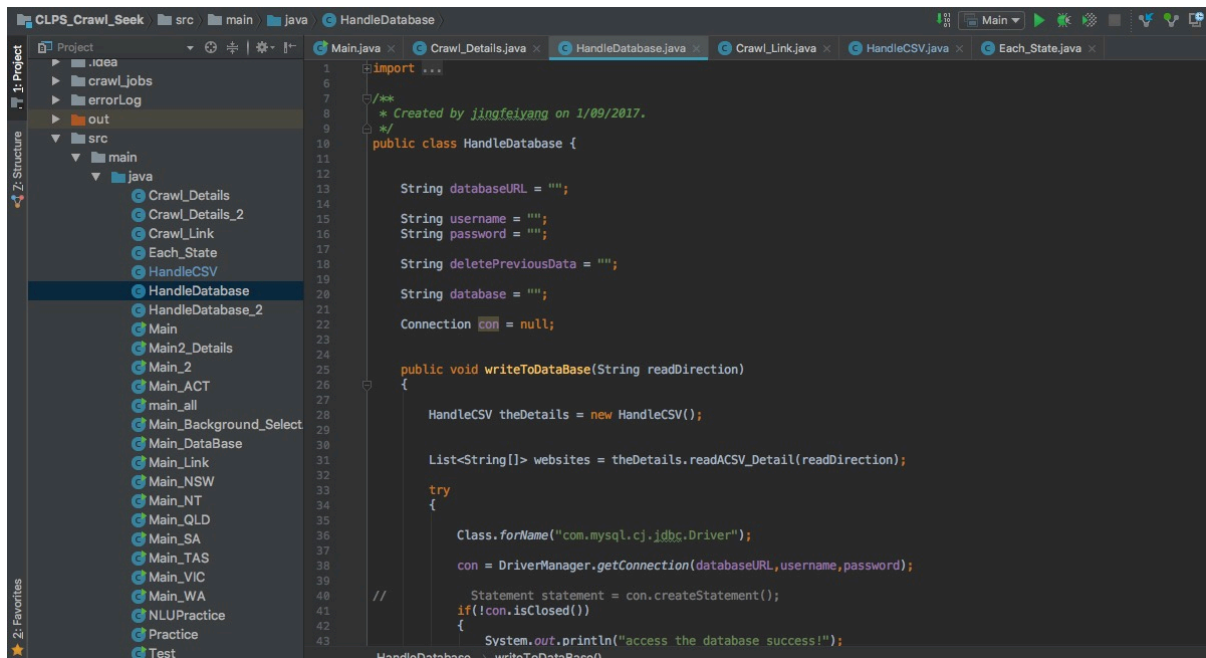
(Using which driver depends on the situation)

The data will be written to Detail file

And after seeking data from every 50 websites, the program will sleep 2000 millis

3.2.6 HandleDatabase

This class will handle the database



The database driver I use is

```
com.mysql.cj.jdbc.Driver
```

This class will create a new table named seekDataDetail in the specific scheme

You can choose to create the scheme and table first or not, this class will check them, if they are not created, this class will create them automatically

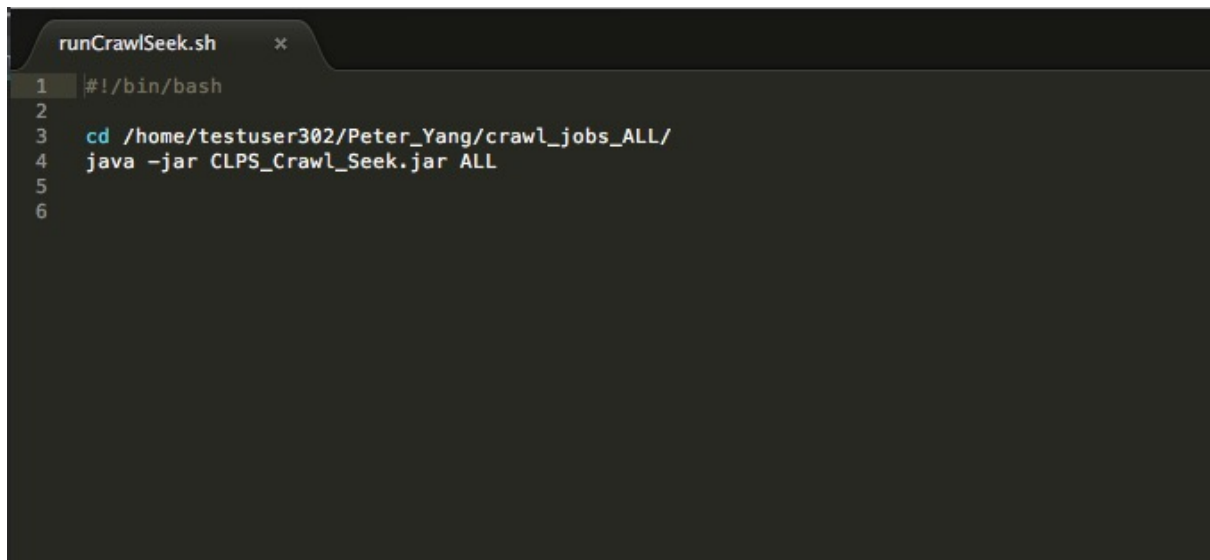
3.3 the process of the program

- read the TheBasicDetails.csv, get the configuration data
- get job titles and websites from specific states based on the command line argument
- write the link information to link file
- read link information from link file and get job details from the specific websites and write the details to Detail file
- read the details information from the Detail file and write it to database

4. The server script and command

4.1 runCrawlSeek.sh

This script is used to run the java file in ubuntu server

A screenshot of a terminal window with a dark background. The title bar at the top shows the filename 'runCrawlSeek.sh' and a close button. The terminal content consists of six lines of text, numbered 1 through 6 on the left. Line 1 is the shebang '#!/bin/bash'. Line 2 is empty. Line 3 is the command 'cd /home/testuser302/Peter_Yang/crawl_jobs_ALL/'. Line 4 is the command 'java -jar CLPS_Crawl_Seek.jar ALL'. Lines 5 and 6 are empty.

```
1 #!/bin/bash
2
3 cd /home/testuser302/Peter_Yang/crawl_jobs_ALL/
4 java -jar CLPS_Crawl_Seek.jar ALL
5
6
```

4.2 crontab command

This command is used to let the script run at 3 pm every day and no output file.

```
0 15 * * * /home/testuser302/Peter_Yang/runCrawlSeek.sh
```