

```

1 package socialmedia;
2 import java.io.Serializable;
3 public class Post implements Serializable {
4     /**
5      *
6      */
7     private int ID; //unique post id
8     private String PostType;//can be either : {comment,endorsement,post,deleted}
9     private String Comment;
10    private int CommentCount;
11    private int ParentPostReference = 0 ;//id if the post/comment this is commenting (0
12    if its not a comment post)
13    private int endorsement = 0;
14
15    //data for endorsed posts:
16    private int endorsedID =0;
17    private String endorsedHandle ="";
18    private String endorsedUserTag ="";
19
20    public Post(int ID,int Reference,String Comment,String PostType,int endorsedID,String
21    endorsedHandle,String end_comment){//constructor method
22        this.PostType = PostType;//can be determined by the value of the
23        ParentPostReference
24        this.ID = ID;
25        this.Comment = Comment;
26        this.ParentPostReference = Reference;
27        if (PostType.equals("endorsement")){
28            this.endorsedID =endorsedID;
29            this.endorsedHandle = endorsedHandle;
30            this.Comment = end_comment;
31            this.endorsedUserTag = "EP@"+endorsedHandle+": "+end_comment;
32        }
33
34    public void incrementEndorsement(){
35        this.endorsement++;
36    }//increments number of endorsements for the post
37
38    public void incrementCommentCount(){
39        this.CommentCount++;
40    }//increments the number of comments for the post
41
42    public String getPostType(){
43        return this.PostType;
44    }//helps to identify what post type the post is to know ifs actionable for certain
45    operations in the System
46
47    public void setPostType(String PostType){this.PostType = PostType;}
48
49    public String getEndorsmentDetails(){
50        return this.endorsedUserTag;
51    }
52
53    public String getEndorsedHandle(){
54        return this.endorsedHandle;
55    }
56
57    public void UpdatdeEndorsedHandle(String handle){//changes the endorsement string if
58    the account its been endorsed from changed their handle name
59        this.endorsedUserTag = "EP@"+handle+": "+Comment;
60    }
61
62    public int getEndorsement(){
63        return this.endorsement;
64    }
65
66    public int getEndorsementID(){return this.endorsedID;}
67
68    public int getID() {

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67     return ID;
68 }
69
70     public int getParentPostReference() {
71         return ParentPostReference;
72     }
73
74     public String getComment() {
75         return Comment;
76     }
77
78     public int getCommentCount(){
79         return this.CommentCount;
80     }
81 }
82
```

```

1 package socialmedia;
2 import java.io.IOException;
3 import java.util.*;
4 import java.io.*;
5
6 public class SocialMedia implements MiniSocialMediaPlatform{
7     /**
8      * uses a ArrayList to store User objects and their corresponding
9      Posts
10     * UniqueID is a cumulative unique integer assigned to every
11     account and post so that every post/account has a unique identifier
12     and its developed in such a way so it never repeats.
13     * developed by : Student ID: 690036000
14     */
15     private List<User>Users= new ArrayList<>();//lis of all users
16     registered on the system
17     private int UniqueID = 1000;//this will help assign Id to every
18     post and user(works concurrently)
19     public boolean checkHandle(String handle){
20         /**
21          *This method checks if a handle exists in the system
22          * param handle ,string to check in the system
23          * return a boolean ,true = exists vice versa.
24          */
25         int pointer = 0;
26         boolean found = false;
27         while(pointer < Users.size()){//searches the list
28             if (Users.get(pointer).getUserName().equals(handle)){
29                 found = true;
30                 break;
31             }
32             pointer++;
33         }
34         return found;
35     }
36     @Override
37     public int createAccount(String handle) throws
38         IllegalHandleException, InvalidHandleException {
39         /**
40          * The method creates an account in the platform with the
41          given handle.
42          * <p>
43          * The state of this SocialMediaPlatform must be be unchanged
44          if any exceptions
45          * are thrown.
46          *
47          * param handle account's handle.
48          * throws IllegalHandleException if the handle already exists
49          in the platform.
50          * throws InvalidHandleException if the new handle is empty,
51          has more than 30
52          * characters, or has white spaces.
53          * return the ID of the created account
54          */
55         try{
56             if(checkHandle(handle)){
57                 throw new IllegalHandleException();// as the account
58             }
59         }
60     }

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47 name(handle) already exists
48         }else{//checks if the handle meets requirements
49             try {
50                 if (handle.length() > 30 || handle.length() == 0
51                     || handle.contains(" ") || handle.contains("\n")){//check if it's a
52                         integer
53                         throw new InvalidHandleException();
54                     } else {
55                         Users.add(new User(UniqueID, handle));//check
56                         if description is needed?
57                         UniqueID++;
58                         //passed all test so account can be generated
59                     }
60                     }catch (InvalidHandleException e){
61                         throw new InvalidHandleException();
62                     }
63                     }
64             return UniqueID - 1;
65         }
66     @Override
67     public void removeAccount(int id) throws
68     AccountIDNotRecognisedException{
69         /**
70          * The method removes the account with the corresponding ID
71          * from the platform.
72          * When an account is removed, all of their posts and likes
73          * should also be
74          * removed.
75          * <p>
76          * The state of this SocialMediaPlatform must be unchanged
77          * if any exceptions
78          * are thrown.
79          *
80          * @param id ID of the account.
81          * @throws AccountIDNotRecognisedException if the ID does not
82          * match to any
83          * account in the system.
84          */
85         try{
86             int pointer = 0;
87             boolean found = false;
88             while(pointer < Users.size()) {//searches the list of
89                 Users
90                 if(Users.get(pointer).getID()==id){
91                     Users.remove(pointer);//remove the User object
92                     found = true;
93                 }
94                 pointer++;
95             }
96             if (!found) {
97                 throw new AccountIDNotRecognisedException();
98             }
99         }catch(AccountIDNotRecognisedException e){

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94         throw new AccountIDNotRecognisedException();
95     }
96 }
97 @Override
98 public void changeAccountHandle(String oldHandle, String
newHandle)
99     throws HandleNotRecognisedException,
IllegalHandleException, InvalidHandleException {
100    /**
101     * The method replaces the oldHandle of an account by the
newHandle.
102     * <p>
103     * The state of this SocialMediaPlatform must be be unchanged
if any exceptions
104     * are thrown.
105     *
106     * @param oldHandle account's old handle.
107     * @param newHandle account's new handle.
108     * @throws HandleNotRecognisedException if the old handle
does not match to any
109     * account in the system.
110     * @throws IllegalHandleException if the new handle already
exists in the
111     * platform.
112     * @throws InvalidHandleException if the new handle is empty
, has more
113     * than 30 characters, or has white spaces.
114     */
115    try{
116        if(checkHandle(oldHandle)){//check if the Account with
the original handle name exists or not
117            //check if new handle is acceptable and if a account
with new handle doesn't already exist
118            if(checkHandle(newHandle)){
119                throw new IllegalHandleException();
120            }else{
121                //check if new handle meets structural
requirements
122                if (newHandle.length() > 30 || newHandle.length
() == 0 || newHandle.contains(" ") || newHandle.contains("\n")){
123                    throw new InvalidHandleException();
124                } else {
125                    //passed all test so account can be updated
with the new user name
126                    int pointer = 0;
127                    while(pointer < Users.size()){//searches the
list to find the user with the original handle name to be update to
the new handle name
128                        if (Users.get(pointer).getUserName().
equals(oldHandle)){
129                            Users.get(pointer).changeUserName(
newHandle);
130                            if(Users.get(pointer).getEndorseCount
(>0){
131                                int y = 0;
132                                while (y < Users.size()) {
133                                    int x = 0;

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134                                     while (x != Users.get(y).  

135                                         nextPost){  

136                                         if (Users.get(y).Posts[x  

137                                         ].getPostType().equals("endorsement")){//deletes any posts that have  

138                                         endorsed the original post  

139                                         if(Users.get(y).Posts  

140                                         [x].getEndorsedHandle().equals(oldHandle)){  

141                                         Users.get(y).  

142                                         Posts[x].UpdatdeEndorsedHandle(newHandle);//updates the endowment  

143                                         handle string  

144                                         }  

145                                         }  

146                                         break;  

147                                         }  

148                                         pointer++;  

149                                         }  

150                                         }  

151                                         }  

152                                         }else{//check if the handle meets requirements  

153                                         throw new HandleNotRecognisedException();//not found  

154                                         account with that handle  

155                                         }  

156                                         }catch(HandleNotRecognisedException e){  

157                                         throw new HandleNotRecognisedException();  

158                                         }  

159                                         @Override  

160                                         public String showAccount(String handle) throws  

161                                         HandleNotRecognisedException{  

162                                         /**  

163                                         * The method creates a formatted string summarising the  

164                                         stats of the account  

165                                         * identified by the given handle. The template should be:  

166                                         *  

167                                         * <pre>  

168                                         * ID: [account ID]  

169                                         * Handle: [account handle]  

170                                         * Description: [account description]  

171                                         * Post count: [total number of posts, including endorsements  

172                                         and replies]  

173                                         * Endorse count: [sum of endorsements received by each post  

174                                         of this account]  

175                                         * </pre>  

176                                         *  

177                                         * @param handle handle to identify the account.  

178                                         * @return the account formatted summary.  

179                                         * @throws HandleNotRecognisedException if the handle does  

180                                         not match to any  

181                                         * account in the system.  

182                                         */  

183                                         }

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179         String stats;
180         try {
181             if (checkHandle(handle)){//checks if the handle exists
182                 int pointer = 0;
183                 while (pointer != Users.size() - 1) {//searches the
list to find the position fo the account to be viewed
184                     if (Users.get(pointer).getUserName().equals(
handle)){
185                         break;
186                     }
187                     pointer++;
188                 }
189                 String UserId = Integer.toString(Users.get(pointer).
getID());
190                 String UserDesc = Users.get(pointer).getDescription
();
191                 String PostCount = Integer.toString(Users.get(pointer).
getPostCount());
192                 String EndorseCount = Integer.toString(Users.get(
pointer).getEndorseCount());
193                 stats = "ID: " + UserId + "\n"
194                         + "Handle: " + handle + "\n"
195                         + "Description: " + UserDesc + "\n"
196                         + "Post Count: " + PostCount + "\n"
197                         + "Endorse Count: " + EndorseCount + "\n";
198             }else{
199                 throw new HandleNotRecognisedException();
200             }
201         }catch(HandleNotRecognisedException e){
202             throw new HandleNotRecognisedException();
203         }
204         return stats;
205     }
206     //post related methods
207     @Override
208     public int createPost(String handle, String message) throws
HandleNotRecognisedException, InvalidPostException{
209         /**
210          * The method creates a post for the account identified by
the given handle with
211          * the following message.
212          * <p>
213          * The state of this SocialMediaPlatform must be be unchanged
if any exceptions
214          * are thrown.
215          *
216          * @param handle handle to identify the account.
217          * @param message post message.
218          * @throws HandleNotRecognisedException if the handle does
not match to any
219          * account in the system.
220          * @throws InvalidPostException if the message is empty or
has more than
221          * 100 characters.
222          * @return the sequential ID of the created post.
223          */
224     try {

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225         if(checkHandle(handle)){
226             int pointer = 0;
227             while (pointer < Users.size()) {//searches the list
228                 if (Users.get(pointer).getUserName().equals(
229                     handle)){
230                     break;
231                 }
232             }
233             try {
234                 if(message.length() !=0 && message.length()<101){
235                     Users.get(pointer).addPost(message, UniqueID,
236                     "Post",0,0,"","","");//0 as it's not a comment post
237                     Users.get(pointer).UpdatePostCount();
238                     UniqueID++;
239                 }else{
240                     throw new InvalidPostException();
241                 }
242             } catch(InvalidPostException e){
243                 throw new HandleNotRecognisedException();
244             }
245             } else {
246                 throw new HandleNotRecognisedException();
247             }
248         }catch(HandleNotRecognisedException e){
249             throw new HandleNotRecognisedException();
250         }
251         return UniqueID - 1;
252     }
253     @Override
254     public int endorsePost(String handle, int id)//determine what to
255     return if exception happens
256     throws HandleNotRecognisedException,
257     PostIDNotRecognisedException,NotActionablePostException{
258         /**
259          * The method creates an endorsement post of an existing post
260          , similar to a
261          * retweet on Twitter. An endorsement post is a special post
262          . It contains a
263          * reference to the endorsed post and its message is
264          formatted as:
265          * <p>
266          * <code>"EP@" + [endorsed account handle] + ":" + [endorsed
267          message]</code>
268          * <p>
269          * The state of this SocialMediaPlatform must be be unchanged
270          if any exceptions
271          * are thrown.
272          *
273          * param handle of the account endorsing a post.
274          * param id of the post being endorsed.
275          * return the sequential ID of the created post.
276          * throws HandleNotRecognisedException if the handle does
277          not match to any
278          * account in the system.
279          * throws PostIDNotRecognisedException if the ID does not
280          match to any post in

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271     * the system.
272     * @throws NotActionablePostException if the ID refers to a
273     endorsement post.
274     * Endorsement posts are not endorsable.
275     * Endorsements are not transitive. For
276     * instance, if post A is endorsed by post
277     * B, and an account wants to endorse B, in
278     * fact, the endorsement must refers to A.
279     */
280     String endorsed_comment = "";
281     String endorsed_handle = "";
282     try {
283         if (checkHandle(handle)) {
284             int pointer = 0;
285             boolean found = false;
286             try {
287                 while (pointer < Users.size()) {//searches the
288                     list
289                     int x = 0;
290                     while (x != Users.get(pointer).nextPost){
291                         if (Users.get(pointer).Posts[x] != null
292                             ) {
293                             if (Users.get(pointer).Posts[x].getID()
294                             () == id){
295                                 if (Users.get(pointer).Posts[x].
296                                     getPostType().equals("endorsement") || Users.get(pointer).Posts[x].
297                                     getPostType().equals("deleted")){
298                                     //cannot endorse endorsed/
299                                     deleted posts
300                                     throw new
301                                     NotActionablePostException();//Can't endorse an endorsed post!
302                                     }else if(Users.get(pointer).Posts
303                                     [x].getPostType().equals("comment")){
304                                     throw new
305                                     NotActionablePostException();//cannot endorse a comment of a post!
306                                     }else{
307                                         Users.get(pointer).
308                                         addEndorsementCount();//its being endorsed so it will ad an
309                                         endorsement counter to it
310                                         endorsed_handle = Users.get(
311                                         pointer).getUserName();
312                                         endorsed_comment = Users.get(
313                                         pointer).Posts[x].getComment();
314                                         Users.get(pointer).Posts[x].
315                                         incrementEndorsement();//adds endorsement count to that particular
316                                         post
317                                         found = true;
318                                         }
319                                         }
320                                         break;
321                                         }
322                                         }
323                                         x++;
324                                         }
325                                         pointer++;
326                                         }
327                                         }
328                                         }catch(NotActionablePostException e){
329                                         throw new NotActionablePostException();
330                                         }
331                                         }
332                                         }
333                                         }
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312         }
313         try {
314             if (found) {
315                 pointer = 0;
316                 while (pointer < Users.size()) { //searches
317                     if (Users.get(pointer).getUserName().
318                         equals(handle)) {
319                         break;
320                     }
321                     pointer++;
322                 }
323                 Users.get(pointer).addPost("", UniqueID, "endorsement", 0, id, endorsed_handle, endorsed_comment); //0 as it's
324                 not a comment post
325                 Users.get(pointer).UpdatePostCount();
326                 UniqueID++;
327             } else {
328                 throw new PostIDNotRecognisedException();
329             }
330         } catch(PostIDNotRecognisedException e){
331             throw new PostIDNotRecognisedException();
332         }
333     } else {
334         throw new HandleNotRecognisedException();
335     }
336 } catch(HandleNotRecognisedException e){
337     throw new HandleNotRecognisedException();
338 }
339 @Override
340 public int commentPost(String handle, int id, String message)
341 throws HandleNotRecognisedException,
342         PostIDNotRecognisedException, NotActionablePostException
343 , InvalidPostException{
344     /**
345      * The method creates a comment post referring to an existing
346      * post, similarly to
347      * a reply on Twitter. A comment post is a special post. It
348      * contains a reference
349      * to the post being commented upon.
350      * <p>
351      * The state of this SocialMediaPlatform must be unchanged
352      * if any exceptions
353      * are thrown.
354      *
355      * @param handle of the account commenting a post.
356      * @param id of the post being commented.
357      * @param message the comment post message.
358      * @return the sequential ID of the created post.
359      * @throws HandleNotRecognisedException if the handle does
360      * not match to any
361      * account in the system.
362      * @throws PostIDNotRecognisedException if the ID does not
363      * match to any post in
364      * the system.
365

```

```

358     * @throws NotActionablePostException if the ID refers to a
359     * endorsement post.
360     * Endorsement posts are not endorsable.
361     * Endorsements cannot be commented. For
362     * instance, if post A is endorsed by post
363     * B, and an account wants to comment B, in
364     * fact, the comment must refers to A.
365     * @throws InvalidPostException if the comment message is
366     * empty or has
367     * more than 100 characters.
368     */
369     int x = 0;
370     try {
371         if (checkHandle(handle)){
372             //fin the id of the post/comment to be commented by
373             //this comment
374             //add to a array of comment s for that user
375             int pointer = 0;
376             boolean foundPostID = false;
377             while (pointer < Users.size()){//searches the list
378                 if(Users.get(pointer).checkPostID(id)){//checks
379                     if the id provided belongs to a used
380                     //check if post is endorsement post if it is
381                     then throw exception
382                     try {
383                         boolean endorsed;
384                         while(true){
385                             if(Users.get(pointer).Posts[x].getID
386                             () == id){
387                                 if(!Users.get(pointer).Posts[x].
388                                 getPostType().equals("deleted")){//makes sure you can't comment on a
389                                 deleted post
390                                 if (Users.get(pointer).Posts[
391                                     x].getPostType().equals("endorsement")){//whats this?
392                                     endorsed = true;
393                                     } else {//might need to
394                                         change this
395                                         endorsed = false;
396                                         }
397                                         foundPostID = true;
398                                         break;
399                                         }else{
400                                         throw new
401                                         NotActionablePostException();//cannot comment on deleted posts
402                                         }
403                                         }
404                                         }
405                                         if(endorsed){
406                                         throw new NotActionablePostException()
407                                         ();
408                                         }
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403                     break; //potentially saves execution time
404                 }
405             pointer++;
406         }
407         try {
408             if (message.length() != 0 && message.length() <
409                 101){//validation
410                 try {
411                     if (foundPostID) {
412                         Users.get(pointer).Posts[x].
413                         incrementCommentCount(); //increments the comment count for the post
414                         being commented on(wrong!!!)
415                         pointer = 0;
416                         while(pointer < Users.size()){
417                             if(Users.get(pointer).getUserName
418                             ().equals(handle)){//searches the list user with the handle provided
419                                 Users.get(pointer).addPost(
420                                     message, UniqueID, "comment", id, 0, "", "");
421                                 Users.get(pointer).
422                                 UpdatePostCount();
423                                 UniqueID++;
424                             }
425                         }
426                     } catch (PostIDNotRecognisedException e){
427                         throw new PostIDNotRecognisedException();
428                     }
429                 } else {
430                     throw new InvalidPostException();
431                 }
432             }catch(InvalidPostException e){
433                 throw new InvalidPostException();
434             }
435             //knows user exists now it has to see if the id of
436             //the comment exists and then it has to add it to the users own
437             //comments as its a comment of a comment
438             } else {
439                 throw new HandleNotRecognisedException();
440             }
441         }catch (HandleNotRecognisedException e){
442             throw new HandleNotRecognisedException();
443         }
444         return UniqueID-1; //return sequential id of the comment made
445     }
446     @Override
447     public void deletePost(int id) throws
448         PostIDNotRecognisedException{//this can only allow to delete posts so
449         parent reference has to be equal to 0 other wise throw error
450         //also delete all endorsements to that post.
451         /**
452          * The method removes the post from the platform. When a post
453          * is removed, all
454          * its endorsements should be removed as well. All replies to

```

```

447 this post should
448     * be updated by replacing the reference to this post by a
449     generic empty post.
450     * <p>
451     * The generic empty post message should be "The original
452     content was removed
453     * from the system and is no longer available.". This empty
454     post is just a
455     * replacement placeholder for the post which a reply refers
456     to. Empty posts
457     * should not be linked to any account and cannot be acted
458     upon, i.e., it cannot
459     * be available for endorsements or replies.
460     * <p>
461     * The state of this SocialMediaPlatform must be be unchanged
462     if any exceptions
463     * are thrown.
464     *
465     * @param id ID of post to be removed.
466     * @throws PostIDNotRecognisedException if the ID does not
467     match to any post in
468     * the system.
469     */
470     int[] Stack = new int[100];
471     int next_top = 1;
472     int pointer = 0;
473     boolean found = false;
474     while (pointer < Users.size()) {//searches the list to see if
475         a post with he given id exists(make a function as its repeated very
476         often everywhere(easy fix))
477         int x = 0;
478         while (x != Users.get(pointer).nextPost){
479             if(Users.get(pointer).Posts[x] !=null){
480                 if (Users.get(pointer).Posts[x].getID() == id){
481                     //check if this post is not a comment post by
482                     //checking whether its reference post is "0"
483                     //check if the post is alredy deleted,if so
484                     //thorw exeption.
485                     if (Users.get(pointer).Posts[x].
486                         getParentPostReference() == 0) {
487                             Users.get(pointer).Posts[x] = null;
488                             Users.get(pointer).Posts[x] = new Post(id
489                             , 0, "The original content was removed from the system and is no
490                             longer available.", "deleted", 0, "", "");
491                             Users.get(pointer).UpdatePostCount();
492                             found = true;
493                         } else {
494                             //throw exception as its not a post but a
495                             //comment
496                         }
497                     }
498                     break;
499                 }
500                 x++;
501             }
502             if(found){
503                 break;
504             }
505         }
506     }

```

```

489         }
490         pointer++;
491     }
492     try {
493         if (found) {
494             //also here find all possible post that have endorsed
495             //this post
496             pointer = 0;
497             while (pointer < Users.size()) {
498                 int x = 0;
499                 while (x != Users.get(pointer).nextPost){
500                     if(Users.get(pointer).Posts[x] !=null){
501                         if (Users.get(pointer).Posts[x].
502                             getEndorsementID() == id){//deletes any posts that have endorsed the
503                             original post
504                             Users.get(pointer).Posts[x] = null;
505                             Users.get(pointer).Posts[x] = new
506                             Post(id,0, "The original content was removed from the system and is
507                             no longer available.", "deleted", 0, "", "");
508                             Users.get(pointer).UpdatePostCount();
509                         }
510                         pointer = 0;
511                         while (true) {
512                             while (pointer < Users.size()){//searches the
513                             list
514                             int x = 0;
515                             while (x != Users.get(pointer).nextPost) {
516                                 if (Users.get(pointer).Posts[x] != null
517                                 )
518                                     if (Users.get(pointer).Posts[x].
519                                         getParentPostReference() == id) {//places all comment posts
520                                         referencing to the current post id on the stack
521                                         Stack[next_top] = Users.get(
522                                         pointer).Posts[x].getID();//adds all post objects referencing to the
523                                         current id set
524                                         next_top++;
525                                         }
526                                         next_top--;//decrements the stack pointer to see
527                                         what is at the top of the stack
528                                         if (next_top == 0){//if pointer is -1 then the
529                                         stack is empty so program has finished searching
530                                         break;
531                                         }
532                                         pointer = 0;
533                                         id = Stack[next_top];//sets the current id to be
534                                         searched according to whats at the top of the stack
535                                         while (pointer < Users.size()){//searches the

```

```

531 list for the post with that id to be deleted
532                     int x = 0;
533                     while (x != Users.get(pointer).nextPost) {
534                         if (Users.get(pointer).Posts[x] != null
535                             ) {
536                             if (Users.get(pointer).Posts[x].getID
537                                 () == id){
538                                 setPostType("deleted");
539                                 Users.get(pointer).Posts[x].
540                                 Users.get(pointer).
541                                 UpdatePostCount();
542                                 }
543                                 }
544                                 Stack[next_top] = 0;//clears the top most item of
the stack as it will now been searched
545                                 pointer = 0;
546                                 }
547                             } else {
548                             throw new PostIDNotRecognisedException();
549                             //exception
550                             }
551                         }catch(PostIDNotRecognisedException e){
552                             throw new PostIDNotRecognisedException();
553                         }
554                         }
555 @Override
556     public String showIndividualPost(int id) throws
PostIDNotRecognisedException{//verify the post is not a comment post
so it's ParentPostReference = 0.
557             /**
558             * The method generates a formated string containing the
details of a single
559             * post. The format is as follows:
560             *
561             * <pre>
562             * ID: [post ID]
563             * Account: [account handle]
564             * No. endorsements: [number of endorsements received by the
post] | No. comments: [number of comments
565             * received by the post]
566             * [post message]
567             * </pre>
568             *
569             * @param id of the post to be shown.
570             * @return a formatted string containing post's details.
571             * @throws PostIDNotRecognisedException if the ID does not
match to any post in
572             * the system.
573             */
574             int pointer = 0;
575             boolean found = false;
576             int comment_count = 0;

```

```

578     String handle_name= "";
579     int endorsement_count= 0;
580     String PostMessage = "";
581     String stats = "";
582     String PostType ="";
583     String endorsementString="";
584
585     while (pointer < Users.size()){//searches the list
586         int x = 0;
587         while (x != Users.get(pointer).nextPost) {
588             if(Users.get(pointer).Posts[x] !=null){
589                 if (Users.get(pointer).Posts[x].getID() == id){
590                     comment_count = Users.get(pointer).Posts[x].
591                     getCommentCount();
592                     endorsement_count = Users.get(pointer).Posts[
593                         x].getEndorsement();//this could be not right
594                     handle_name = Users.get(pointer).getUserName
595                         ();
596                     PostMessage = Users.get(pointer).Posts[x].
597                     getComment();
598                     PostType = Users.get(pointer).Posts[x].
599                     getPostType();
600                     endorsementString=Users.get(pointer).Posts[x]
601                     .getEndorsmentDetails();
602                     found = true;
603                 }
604             }
605             x++;
606         }
607         pointer++;
608     }
609     try {
610         if (found && (PostType.equals("Post") || PostType.equals(
611             "endorsement")) ) {//has to be a id that exists and a id that refers
612             to only a Post or a endorsement
613             if (PostType.equals("endorsement")) {
614                 stats = endorsementString+"\n"
615                 +"ID: " + id + "\n"
616                 + "Handle: " + handle_name + "\n";
617             } else {
618                 stats = "ID: " + id + "\n"
619                 + "Handle: " + handle_name + "\n"
620                 + "No. endorsements: " +
621                 endorsement_count + " | Post Count: " + comment_count + "\n"
622                 + "Post Message: " + PostMessage + "\n";
623             }
624         }else{
625             throw new PostIDNotRecognisedException();
626         }
627     }catch(PostIDNotRecognisedException e){
628         throw new PostIDNotRecognisedException();
629     }
630     return stats;
631 }
632 @Override
633 public StringBuilder showPostChildrenDetails(int id)

```

```

625         throws PostIDNotRecognisedException,
626         NotActionablePostException{
627             /**
628             * The method builds a StringBuilder showing the details of
629             * the current post and
630             * all its children posts. The format is as follows:
631             * <pre>
632             * {@link #showIndividualPost(int) showIndividualPost(id)}
633             * |
634             * [for reply: replies to the post sorted by ID]
635             * | > {@link #showIndividualPost(int) showIndividualPost(
636             reply)}
637             * </pre>
638             * @param id of the post to be shown.
639             * @return a formatted StringBuilder containing the details
640             of the post and its
641             * children.
642             * @throws PostIDNotRecognisedException if the ID does not
643             match to any post in
644             * the system.
645             * @throws NotActionablePostException if the ID refers to an
646             endorsement post.
647             * Endorsement posts do not have children
648             * since they are not endorseable nor
649             * commented.
650             */
651             int PrevID =0 ;//used to determine if to print a small arrow
652             // or a large arrow
653             ArrayList<Integer> PrevIDvisited = new ArrayList<>(); //used
654             to determine if to print a small arrow or a large arrow
655             StringBuilder stringBuilder = new StringBuilder();//main
656             string builder
657             StringBuilder TotalTab = new StringBuilder();//for building
658             the indents
659             String handle_nameX ="";
660             int idX = 0;
661             int endorsements_countX = 0;
662             int comment_countX = 0;
663             String PostMessageX = "";
664             String moveDown ="\\n";
665             String Tab = " ";
666             int[][] Stack = new int[100][2];//array [id of the comment
667             on the stack to be explored for sub comments];
668             int[][] IndentListArray = new int[100][2];//[ID][indent value
669             ]
670             int nextFreePosInListArray = 0;
671             int next_top = 1;
672             int pointer = 0;
673             int indent = 0;
674             boolean found = false;
675             while (pointer < Users.size()){//searches the list if the id(
676             root id) provided exists
677                 int x = 0;
678                 while (x != Users.get(pointer).nextPost) {
679                     if(Users.get(pointer).Posts[x] !=null){

```

```

669             if (Users.get(pointer).Posts[x].getID() == id){
670                 if(Users.get(pointer).Posts[x].getPostType().
671                     equals("Post")||Users.get(pointer).Posts[x].getPostType().equals("comment")){//if its deleted then it wont show it
672                         handle_nameX = Users.get(pointer).
673                             getUserName();
674                         idX = id;
675                         endorsements_countX = Users.get(pointer).
676                             Posts[x].getEndorsement();
677                         comment_countX = Users.get(pointer).Posts
678                             [x].getCommentCount();
679                         PostMessageX = Users.get(pointer).Posts[x].
680                             getComment();
681                         found = true;
682                     }else{
683                         throw new NotActionablePostException();
684                     }
685                 }
686             try {
687                 if (found) {
688                     stringBuilder.append("ID: " + idX + "\n");//build the
689                     top post (seed post)
690                     "Account: " + handle_nameX + "\n"
691                     +
692                     "No. endorsements: " +
693                     endorsements_countX +" |"+ " No. comments: " + comment_countX+"\n"+
694                     "Post Message: " + PostMessageX);
695                     IndentListArray[nextFreePosInListArray][0]= id;//adds
696                     the seed post as zero indent as it's the first post
697                     IndentListArray[nextFreePosInListArray][1]= 0;
698                     nextFreePosInListArray++;
699                     //PrevID =id;
700                     pointer = 0;
701                     while (true) {
702                         while (pointer < Users.size()){//searches the
703                             list
704                             int x = 0;
705                             while (x < Users.get(pointer).nextPost) {
706                                 if (Users.get(pointer).Posts[x] != null){
707                                     if (Users.get(pointer).Posts[x].
708                                         getParentPostReference() == id){
709                                         int y = 0;
710                                         while(y < nextFreePosInListArray
711                                         ){
712                                             if(IndentListArray[y][0]==id
713                                             ){//updates the indent list to determine how much to indent each
714                                             comment posts
715                                             IndentListArray[
716                                             nextFreePosInListArray][0]= Users.get(pointer).Posts[x].getID();
717                                             IndentListArray[
718                                             nextFreePosInListArray][1]= IndentListArray[y][1] + 1;
719                                             nextFreePosInListArray++;
720                                         }
721                                     }
722                                 }
723                             }
724                         }
725                     }
726                 }
727             }
728         }
729     }
730 }

```

```

709                     break;
710                 }
711             }
712         }
713     Stack[next_top][0] = Users.get(
714         pointer).Posts[x].getID(); //adds to the stack so it can be explored
715         later for deeper comments of comments ect..
716     Stack[next_top][1] = id;
717     next_top++;
718     }
719     }
720     pointer++;
721   }
722   next_top--;
723   if (next_top == 0) {
724     break;
725   }
726   id = Stack[next_top][0];
727   //already_visited.add(id);
728   pointer = 0;
729   while (pointer < Users.size()){//searches the
    list of users to gather the data of the commentator
730     int x = 0;
731     while (x < Users.get(pointer).nextPost) {
732       if(Users.get(pointer).Posts[x] !=null){
733         if (Users.get(pointer).Posts[x].getID()
734           () == id){
735           //grab all details;
736           handle_nameX = Users.get(pointer
737             ).getUserName();
738           idX = id;
739           endorsements_countX = Users.get(
737             pointer).Posts[x].getEndorsement();
740           comment_countX = Users.get(
738             pointer).Posts[x].getCommentCount();
741           PostMessageX = Users.get(pointer
739             ).Posts[x].getComment();
742           }
743         }
744         pointer++;
745       }
746       pointer = 0;
747       int y = 0;
748       while(y != nextFreePosInListArray){
749         if(IndentListArray[y][0]==id){//grabs the id
750           indent = IndentListArray[y][1];//grabs
    the indentation level for that post id
751           break;
752         }
753         y++;
754       }
755       int z = 0;
756       while(z != indent){//determines how much to

```

```

756     indent the string
757             TotalTab.append(Tab); //builds the indentation
758             level
759             z++;
760             }
761             stringBuilder.append(moveDown); //may not be
necessarily(will see how it looks later)
762             if(Stack[next_top][1] != PrevID && !PrevIDvisited
.contains(Stack[next_top][1])){//determines which type of arrow to
use
763                 stringBuilder.append(TotalTab+"|"+ "\n"+
TotalTab+"| >"+"ID: " +
idX + "\n");
764                 PrevID = Stack[next_top][1];
765                 PrevIDvisited.add(PrevID);
766             }else{
767                 stringBuilder.append(TotalTab+ " | >"+"ID: "
+ idX + "\n");
768             }
769             stringBuilder.append("//builds the final output
string
770             TotalTab
771             + " Account: " + handle_nameX + "\n"+
TotalTab
772             + " No. endorsements: " +
endorsements_countX +" |"+ " No. comments: " + comment_countX+"\n"+
773             TotalTab
774             + " Post Message: " + PostMessageX);
775             Stack[next_top][0] = 0;//resets stack top value
776             to 0(default)
777             TotalTab.setLength(0); //resets the indent amount
778         }
779     } else {
780         throw new PostIDNotRecognisedException(); //throws the
exception
781     }
782 }catch(PostIDNotRecognisedException e){
783     throw new PostIDNotRecognisedException();
784 }
785 return stringBuilder; //return the final output
786 }
787 @Override
788 public int getMostEndorsedPost(){
789     /**
790      * This method identifies and returns the post with the most
number of
791      * endorsements, a.k.a. the most popular post.
792      *
793      * @return the ID of the most popular post.
794      */
795     int pointer = 0;
796     int most_endorsements=0;
797     int id = 0;
798     while (pointer < Users.size()){
799         int x = 0;
800         while (x != Users.get(pointer).nextPost){
801             if (Users.get(pointer).Posts[x].getEndorsement() >

```

```

801 most_endorsements){
802     most_endorsements = Users.get(pointer).
803     getEndorseCount();
804     id = Users.get(pointer).Posts[x].getID();
805     }
806     x++;
807     pointer++;
808 }
809 return id;
810 }
811 @Override
812 public int getMostEndorsedAccount(){
813 /**
814     * This method identifies and returns the account with the
815     * most number of
816     * endorsements, a.k.a. the most popular account.
817     *
818     * @return the ID of the most popular account.
819     */
820     int pointer = 0;
821     int most_endorsements=0;
822     int id = 0;
823     while (pointer < Users.size()){
824         if(Users.get(pointer).getEndorseCount()>most_endorsements
825 ) {
826             most_endorsements = Users.get(pointer).
827             getEndorseCount();
828             id = Users.get(pointer).getID();
829             }
830             pointer++;
831         }
832         @Override
833         public void erasePlatform(){//clears all data that's saved on the
834         platform
835         /**
836         * Method empties this SocialMediaPlatform of its contents
837         and resets all
838         * internal counters.
839         */
840         @Override
841         public void savePlatform(String filename) throws IOException{
842             /**
843             * Method saves this SocialMediaPlatform's contents into a
844             serialised file, with
845             * the filename given in the argument.
846             *
847             * @param filename location of the file to be saved
848             * @throws IOException if there is a problem experienced when
849             trying to save the
850             * store contents to the file
851             */

```

```

850
851     try {
852         ObjectOutputStream out = new ObjectOutputStream(new
853             FileOutputStream(filename));
854         out.writeObject(Users);
855         out.writeInt(UniqueID);
856         out.close();
857         System.out.println("Serialized data is saved in: " +
858             filename);
859     } catch (IOException e){
860         throw new IOException();
861     }
862     @Override
863     public void loadPlatform(String filename) throws IOException,
864     ClassNotFoundException{
865         /**
866          * Method should load and replace this SocialMediaPlatform's
867          * contents with the
868          * serialised contents stored in the file given in the
869          * argument.
870          *
871          * <p>
872          * The state of this SocialMediaPlatform's must be be
873          * unchanged if any
874          * exceptions are thrown.
875          *
876          * @param filename location of the file to be loaded
877          * @throws IOException if there is a problem experienced when
878          * trying
879          * to load the store contents from the file
880          * @throws ClassNotFoundException if required class files
881          * cannot be found when
882          * loading
883          */
884     try {
885         ObjectInputStream input = new ObjectInputStream(new
886             FileInputStream(filename));
887         // Read objects
888         try {
889             Users = (List<User>) input.readObject(); //fix
890             UniqueID = input.readInt();
891             System.out.println("Serialized data read from: " +
892                 filename);
893             input.close();
894         }catch(ClassNotFoundException e){
895             throw new ClassNotFoundException();
896         }
897         }catch(IOException e){
898             throw new IOException();
899         }
900     }
901 }
902

```

```

1 package socialmedia;
2 import java.io.Serializable;
3 public class User implements Serializable {
4     /**
5      * Stores all information regarding each User object
6      * All Users posts are accessed and stored in each users object class
7      */
8     private int ID;//unique id of the user
9     private int PostCount = 0;
10    private int EndorseCount = 0;//increased as someone endorses that user's post
11    //private String Description; not used in mini social media implementation
12    private String UserName;//also known as the handle
13    public Post[] Posts = new Post[1000];//includes posts and comment posts(made public
for now)
14    public int nextPost = 0;
15
16    public User(int ID, String UserName){//constructor method
17        this.ID = ID;
18        this.UserName = UserName;
19    }
20    public void addPost(String message, int ID, String PostType, int Reference, int
endorsedID, String endorsedHandle, String end_comment){//adds post and the post is never
removed but its type set as :"deleted"
21        Posts[nextPost] = new Post(ID, Reference, message, PostType, endorsedID,
endorsedHandle, end_comment);
22        nextPost++;
23    }
24    public void addEndorsementCount(){
25        EndorseCount++;
26    }
27
28    public void changeUserName(String newUserName){
29        UserName = newUserName;
30    }
31
32    public int getID(){
33        return this.ID;
34    }
35
36    public String getUserName(){
37        return this.UserName;
38    }
39
40    public String getDescription(){
41        return "";
42    }
43
44    public int getPostCount(){
45        return this.PostCount;
46    }
47
48    public void UpdatePostCount() {//searches the array of posts to change the number of
posts if a post has been added or removed
49        int x = 0;
50        int tempCount = 0;
51        while(x < nextPost){
52            if(!Posts[x].getPostType().equals("deleted")){
53                tempCount++;
54            }
55            x++;
56        }
57        PostCount = tempCount;
58    }
59
60    public int getEndorseCount(){
61        return this.EndorseCount;
62    }
63
64    public boolean checkPostID(int ID) {//check if a post with that id exists in the
system
65        int pointer = 0;

```

```
66     boolean found = false;
67     while(Posts[pointer] !=null){
68         if(Posts[pointer].getID()==ID){
69             found = true;
70             break;
71         }
72         pointer++;
73     }
74     return found;
75 }
76
77 }
78
```