Chapter Three

Analysis Phase

3.1 Introduction

This chapter is dedicated to and the system analysis. This stage is one of the important stages in setting up the system .It has preliminary study and detailed study . In this chapter , well determine the scientific stages of analysis system well be set to study and analyze the mechanical system and find the relation which connect it's first components each other to set a systems in Elsevier , Springer organization .also , In this stage , the problems of the system through the following steps :

- The problem definition .
- Setting the objectives of proposed system .
- Feasibility study .
- Choosing new system
- Setting a time plan for the project .

3.2 Problem definition

The problem is the manual system of Dhamar university which directs the publication process and scientific researches arbitration . many flaws (mistakes) and problems are stemmed from this system and they affects the publication process for researches sin the journal .

3.2.1 Manual system problems

There are some problems that face Dhamar university journal in it's manual system as follow :

1- Its difficulty to correspond and communication with the specialized institution on the local or territorial level (scientific journal for Arabic and international university) and the submitted researches for journal are restricted by two local researches.

2- The using of the manual system in arbitration process when a research is published , it is sent to the journal editorial board and the board set some values (from evolution) after that the board sent them with the research to arbitration committee to evaluate it , and get the publisher to amend it (if it's needed) and back to get the publisher to amend it and back it the board to send it again to the arbitration committee to do the arbitrator and back to the board and Finally , the precise correct of publication is done . this cause the waste of time and effort . if the mechanical system is used , the time and effort will not be wasted and the arbitration of researches will be achieved more in short time .

3- It is difficult to know the case , for example if it is needed to know the research case or procedural document , it must go to the responsible committee for knowing the research case and may be the process will be failed .

4- Process (addition ,omission and amendment or update) in the research are difficult . It needs to remark up them again and lose much among in case the researcher amends the research according to the arbitration committee's request . this take much time and a lot of effort .

5- It is difficult to archive the manual researches and look for them , and there isn't enough storage area for researches , (especially , published once).
6- Limitation of accessibility
7-not globally indexed.
8-lack of international recognition move it from here.
9- lack of standard organization.

3.3 Present system VS. proposed system

this section contains the comparison between the manual system and the proposed system . We explain through this comparison the advantages and disadvantages of the present time (manual system). In addition to that the advantages of the proposed system. as follows :-

3.3.1 Advantages and disadvantages of the manual system

Advantages
-The guarantee of getting the research to the editorial board .
-The guarantee of completing the research process .

Disadvantages
-The progress of process is slowed .
-The difficulty of archiving researches .
-It wastes time in eliciting the researches quickly .
-Published researches , in the journal , are only for local publisher .

3.3.2 Advantages of the proposed system

1- It's easiness to communicate and correspond with many of specialized institution on the local and territorial level .
2- It facilitates the communication between the editorial board and the editorial board and reviewers .
3- It enables the researcher to follow up the process of revision and precision of the research through the letter s from email of the researcher .
4- The control of tasks between editorial board members and reviewer.
5- It avoids the problem, in the manual system, which are resulted form:-

- The slowness in process moving and wasting time.

- The published researches, in the journal, are not only for local publishers.

6- The easiness of reviewer, precision and publication process.

7- The easiness of archiving researches and keeping the published researches for long time with finding enough storage area for storing the data and making reserved copies.
8- The easiness of researching for a research and getting the detailed knowledge for the published researches and non-published researches.
9- The ability to track and progress of research status .
10- The easiness of making periodical reports about the case of the published researches in special time.

3.4 *Feasibility Studies*

This part of project explain the possibility of applied the goals practice, which are mentioned above, and studying its activity and flexible using in the institution to improve the method through finding accessible alternatives that change the manual system to active one. The feasibility study involves technical feasibility, economic feasibility, operational feasibility and it is represented in the following:-

3.4.1 Technical feasibility

The feasibility study is through the technical feasibility that shows us that technology at our hand and it helps us to achieve the new system. In deed, it's certain that most of scientific journal go quickly towards the automatic systems because those systems are batter in saving time, money, effort, precision, guarantee. In the technical feasibility, we study technical system is needs and availability in the market that provide all needs for the system. So we can set them and know the extent of finding them in the markets. If they are available, we have to know whether we can get them or not. In this project we need the following technique:-

-Windows Computer

Pentium 4 or later
1 GHz or faster
1GB RAM or higher recommended
Ethernet connection to LAN or cable modem (10 Mbps)
Windows 2000, 2003, XP, Vista or 2008 operating system

-Application Software

Microsoft Word
Adobe Acrobat Reader 6.0 or later
Internet Explorer 6.0 or later (Windows)
Firefox 2.0 or later (Linux)

-Internet Connection

So that all previous techniques are available in university, due to this the system is feasible.

3.4.2 Economic Feasibility

The economic feasibility measures and shows the cost of developing and operating the new system and measures its usefulness of its using in the institution. The following points, encourage decision making ,The important ones as the followings:-

1- Finding much cost for getting the researches to the arbitration and correction committee.

2- Finding the used materials in the manual system as files, publication and offices for keeping all these materials the cost of software system .The needed software , for system is operations, are the following:-

- Windows 2000, 2003, XP, Vista or 2008 operating system
- Microsoft Word
- Firefox 2.0 or later (Linux)

- Internet Explorer 6.0 or later (Windows)
- Adobe Acrobat Reader 6.0 or later

The benefits of this system is as follows :-

- Giving the suitable time for authors to submit their researches.
- the easiness of dealing with the system .

3.4.3 Operational Feasibility

. The operational feasibility measure and explain ability of employees (workers) in dealing with the new system . It depend on firstly the directors and editorial board members in the manual journal in university , so these questions must be answered :-

Q1- Are there employee who can do with the new system ?

Q2- will the employee agree to use the new system?

If the users are happy with the old system and think that there is no need for the new system, the project success probably will be acceptable . however if the users of old system in university are convinced that if there is electronic system for the journals management and it will not waste their time , the project success will have better chance .

The operational feasibility means that the system is able to continue the work after submitting the system to the agent according to agreeable conditions and qualities and the possibility of acting new system in institution ,…etc . And how the workers and users feeling toward the new system , and show the changes in work. Affairs and how to train and qualify the employees in order to work in the new system . It's a continuous stage because new things will be shown through setting up the system stage .

3.5 New system selection

There are tow selections:-

1- The manual system

The old system is continuous and depends manually on the management and arbitration of scientific researches.

2- ***The Automatic***

It's set up in software language and great data base have strong tasks that are designed by drawn boards work with high and easy flexibility in the control of scientific researches.

3.5.1 Alternatives evaluation

It's noticeable that the manual system depends on an essential elements I, e human element. The disadvantages (weakness) of the manual system are slowness , and negligence in searching and manual archiving and the costs of those operations. The modern automatic system is distinguished with high flexibility in treating with the system in addition in it's using in internet techniques . so , it's easily accessed from any place and this will make much time , effort and cost.

3.5.2 Suitable alternative selection

The present system stirs up the fears from accompanying security in exchange researches ,but those fears are quickly wasted when they treat with the language of ASP .It's generally distinguished with the easiness and flexibility that set up hard pages in web to get actively the pages and bring information from special data base . (MYSQL) data base work special on internet web and have a lot of important positive such as supporting web pages and the used language (ASP.NET). Therefore , the modern automatic system is the suitable alternative .

3.6 Time plan

They set the time periods for setting up system pages (analysis, design , implementation , test) and all activities that include every stage till the system submitting for the agent [6].

3.6.1 Activity Table:

This table shows the names of activities which in the project and previous activities and the time for each one.

Table 3.1

Activity	Predecessor	Duration (Days)
A: Problems ,System Objectives , background	None	14
B: Feasibility Studies	A	8
C: Project scheduling	None	14
D: System Requirements (Author ,Reviewer ,Editor)	B,C	18
E: Data Flow Diagrams	D	10
F: Entity Relationship Diagram	E	9
G: Designing System Database	F	11
H: Algorithms Designing	G	9
I: Designing User Interfaces	G	28
J: Implementation	G,H	40
K: System Test	I,J	11
L: System Documentation	None	116

3.6.2 Gantt Chart:

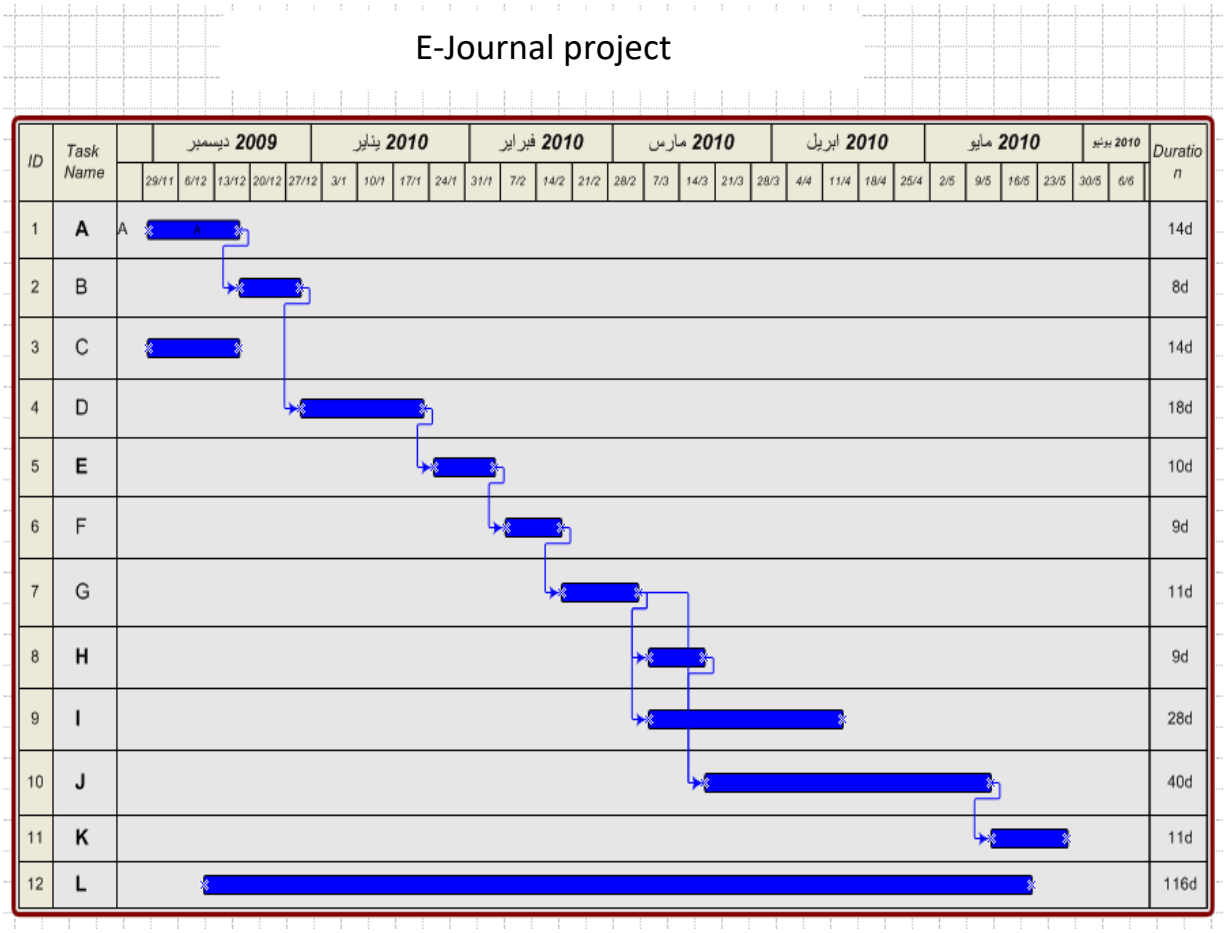


Figure 3-1 . Gantt Chart

3.6.3 Pert Diagram

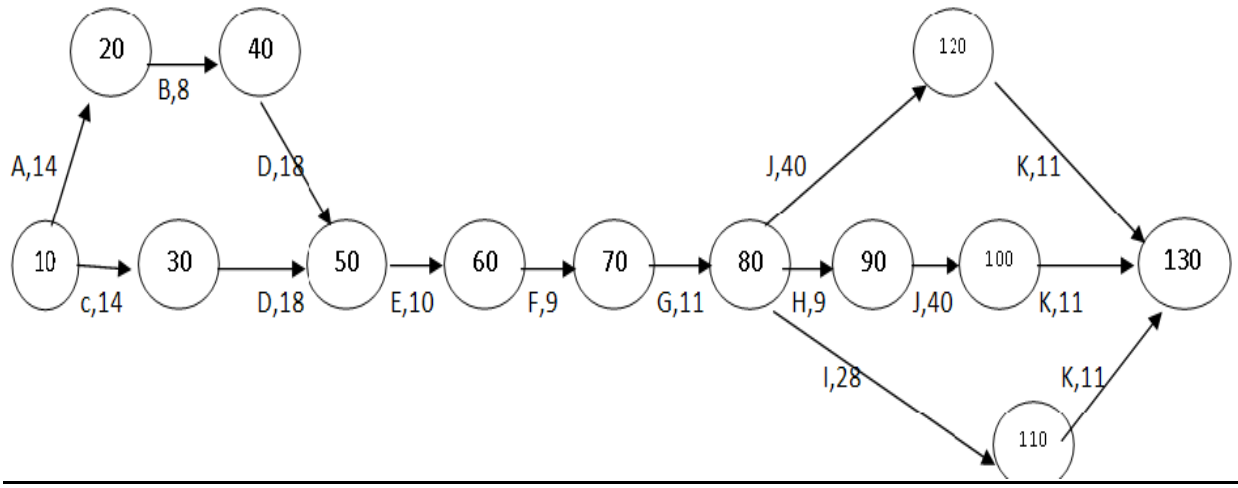


Figure 3-2 . Pert Diagram

Figure 3.2 is the representation of the activities and duration of each activity through the critical path from the beginning to the final activity. It shows the expected time for achieving the project .The critical path in the project is

(10 20 40 50 60 70 80 90 100 130) ⟶ 130 day

It represent the longest time , so any activity are late on this path, the project will be too late .

3.7 System Requirements

Requirements of the project are classified in to the following :

3.7 .1 Author requirements

- Author registrations are checked for duplicates.
- Authors can register themselves on the system or can be pre-registered by the editorial office.
- Authors can submit a new manuscript.
- Editorial office can specify that submission steps are mandatory or optional, and limit number of choices or characters allowed for responses.
- Submitting author can designate a co-author to be the "Corresponding Author."
- Authors can select their own keywords that describe the submission.
- Authors can select their own keywords that describe their area of expertise.
- Authors can suggest or oppose reviewers during manuscript submission.
- Authors can enter comments or a cover letter.
- Authors have a clear and easy way to submit a revised manuscript without having to re-enter all metadata and files.
- Author can entered submission metadata (e.g. Abstract, Title, Short Title, etc) . If an author is interrupted, the system automatically saves the partially completed submission for later completion.
- Author can edit the manuscript prior to submission to editorial office.
- Authors receive an email when the submission has been received by the editorial office.
- Authors can check on the status of a submission using the Web.
- Revised manuscript number includes a revision suffix (R1, R2, etc.) to indicate the revision number.
- Authors receive editor decision letter by email.
- Authors can indicate that an item will be submitted offline.

3.7 .2 Editor requirements

- -Editor role names can be configured by the editorial office.
- -Editors are notified of assignments by email
- -Editors can view their tasks ("action links") -Editors can have access to additional manuscript data fields customized by the editorial office.
- -Editors can search for candidate reviewers by creating searches that combine name, address, institution, keywords, or other criteria.

- Editors can search for candidate reviewers by matching reviewer and manuscript classifications .
- Editors can see reviewer names that have been suggested or opposed by the submitting author.
- Editors can customize the reviewer invitation letter(s)
- Editors can easily identify manuscripts where reviewers have not yet responded to their invitation.
- Editors can easily identify manuscripts which have all required reviews completed and which are ready for a decision.
- Editors can easily sort lists of displayed manuscripts.
- Editors can be granted access to manuscript details (metadata) including notes added by the editorial office.
- Editors can be granted access to reports . They can configure and save their own reports
- Editors can be granted the power to assign a manuscript to other editor role(s) .
- Editors can make decisions concerning manuscripts at any time regardless of reviewer status.
- The editor decision page provides single-screen access to all the information needed by the editor to make a decision about the manuscript, including all manuscript revisions, all -reviewer comments , comments from other editors, author letters.
- Editors can edit reviewer comments that will be displayed to the author .
- Editors have the option to "terminate" or "uninvited" reviewers who have not submitted their review prior to decision.
- Editors can be given permission to send reminder letters to reviewers (configured by the editorial office).
- If an editor has assigned a manuscript to another editor(s), they can group those manuscripts by editor name.
- Editors can view manuscripts with their prior decisions, grouped by decision (accept, reject, withdrawn).
- Editors can view a manuscript rating card that aggregates the reviewers' responses to radio button questions on the reviewer form.
- Editors can download and edit reviewer attachments, and optionally display reviewer attachments to authors upon revision.
- Editors can be granted limited access to system configuration options.

3.7 .3 Reviewer requirements

- Users can register themselves on the system and indicate their willingness to be -reviewers, or can be registered by an editor.
- Reviewers can enter their own keywords to define their area of expertise.
- Editorial office can invite reviewers to review a manuscript by email
- The amount of information displayed to the reviewer (e.g. abstract) before accepting the invitation is controlled by the editorial office.
- Reviewers can accept or decline a reviewer invitation.
- Reviewers can submit their review online.
- Reviewers can save their review for later submission.
- Reviewers can rate the manuscript.

- Reviewers can view their previously completed assignments.
- Editorial offices can define multiple reviewer roles.
- Reviewers can view the author's response to their review, which is recorded by the system.

3.8 Detailed study

It involves the following steps :-
1-Data collection.
2-Data registration.
3-Data flow diagram.
4-Data dictionary

3.8.1 Data collection

Data collection in this stage consider is more detailed process. More precisely it's involved different ways as reading documents , personal interview , questionnaire and notices . In addition to modern ways such as scientific journals in this field e.g. Applied intelligence .

In spite of different ways in data collection , there isn't acted on ideal way anymore. Every way has merits and demerits so the researcher has to choose the suitable way which suits his research in data collection that are like by him . It depends on different elements such as :-
1-The nature of research and study of society.
2-The researcher's saturation (conditions) such as money and time.
In this project , there are two ways according to the above mentioned elements .
1-Personal interview .
2-Data registration.
3-Internet .
4-Scientific journals e.g. Applied Intelligence.

personal interview

The main goal of the interview, is to get the interviewee's opinions .these opinions are more important than facts, because we ask about an opinion and discover that it has an important problem needs to be solved. It is used for collecting the facts and knowing the goals of the needed system.

The personal interview has been done with some members of editorial board of the journal and they gave us general background about the procedures and operations which are done in the process of publishing special research. We interviewed some who expert in this field and knew the mechanism , which followed publishing any research, and the experienced doctors' knowledge in publishing researches in some known journals.

3.8.2 Data registration

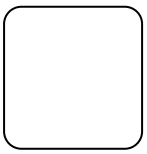
It's the most important process in documenting the stage of the detailed study. It is done during finding data and after its completion. There some causes to used data registration specified as follows:-
1-Keep data from deletion or loss.

2-Getting clear and understandable data.
3- It can show useful ideas at the time of data registration process.
4-To document.

Data registration is the most important process in documenting preliminary study and after it the following ways:-
1-Handwriting
2-Loading form internet sites.
3-Taking trustful data from the editorial board of the journal.

3.8.3 Data Flow Diagram

A data flow diagram (DFD) is a graphical representation of the flow of data through a system. Data flow diagram show how data moves through an information system but does not show program logic or processing steps. DFD is best way to explain the project which enable the developers and end user to understand it's, and include the following steps:-
DFD Symbols
DFD use four symbols that represent processes, data flow, data stores, and external entities.
1- Process Symbols
A process receives input data and produces output that has a different content, form, or both. The symbol for a process is a rectangle with rounded corners. The name of process appears inside the rectangle, The process name identifies a specific function .



2- Data Flow Symbols

- A path for data to move from one part of the information system to another .
- A data flow in a DFD represents one or more data item .
- The diagram does not show the structure and detailed contents of a data flow.

3- Data Store Symbol

- A data store , is used in a DFD to represent a situation in which the system must retain data because one or more process need to use the stored data at a later time .
- The DFD does not show the detailed contents of a data store ; the specific structure and data element are defined in the data dictionary .

4- External Entity Symbol

- An external entity is a person , department ,outside organization ,or other information system that provides data to the system or receives output from the system .
- External entities show the boundaries of the information system and how the information system interact with the outside world.

3.8.3.1 Context Diagram

The first step in constructing a set of DFDs is to draw a context diagram .a context diagram is a top level view of an information system that shows the systems boundaries and scope .to draw a context diagram . you do not show any data stores in the context diagram because data stores are internal to the system

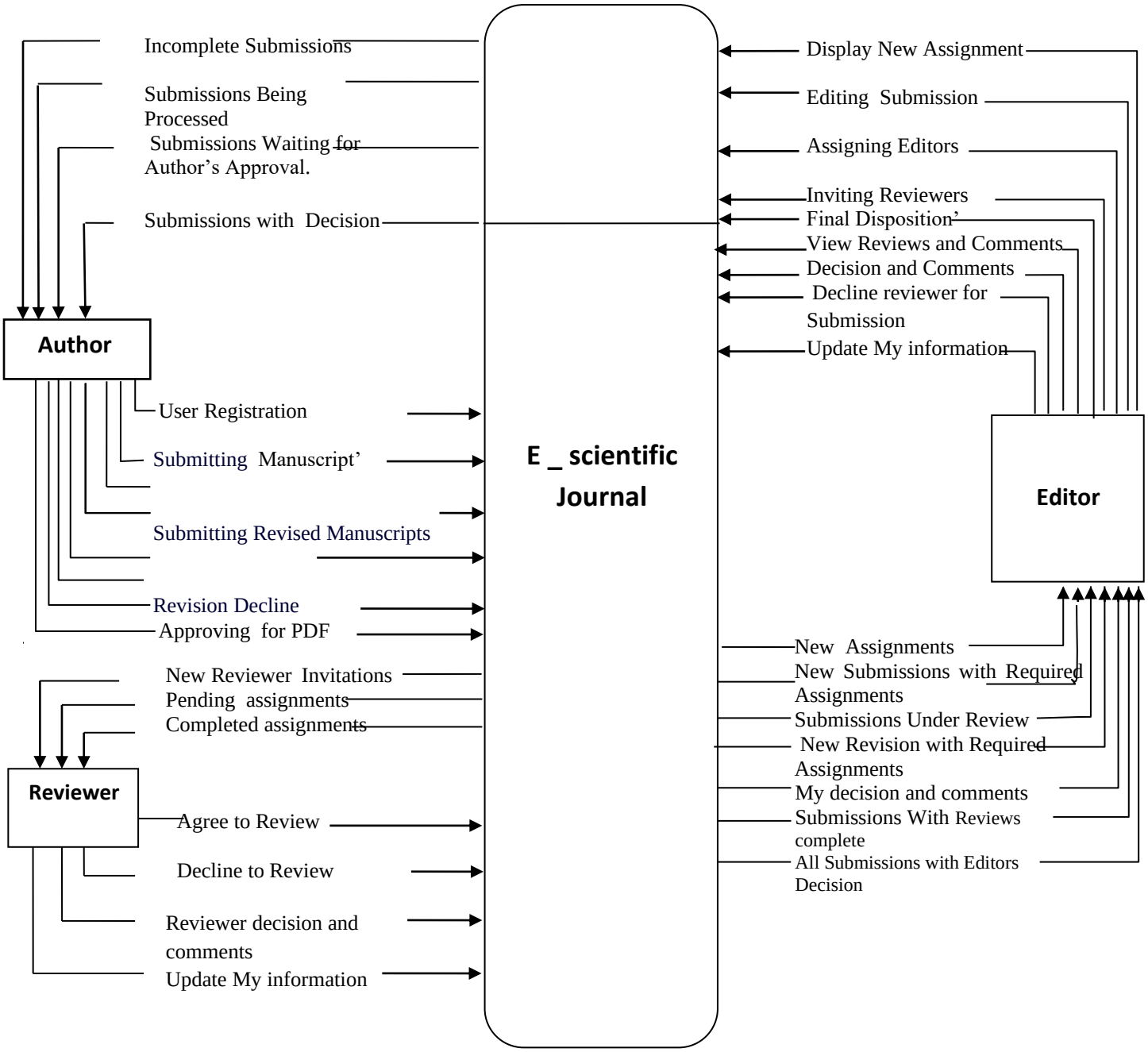


Figure 3-3: Context Diagram

3.8.3.2 Diagram-0

- ***Author process diagram in Diagram-0***

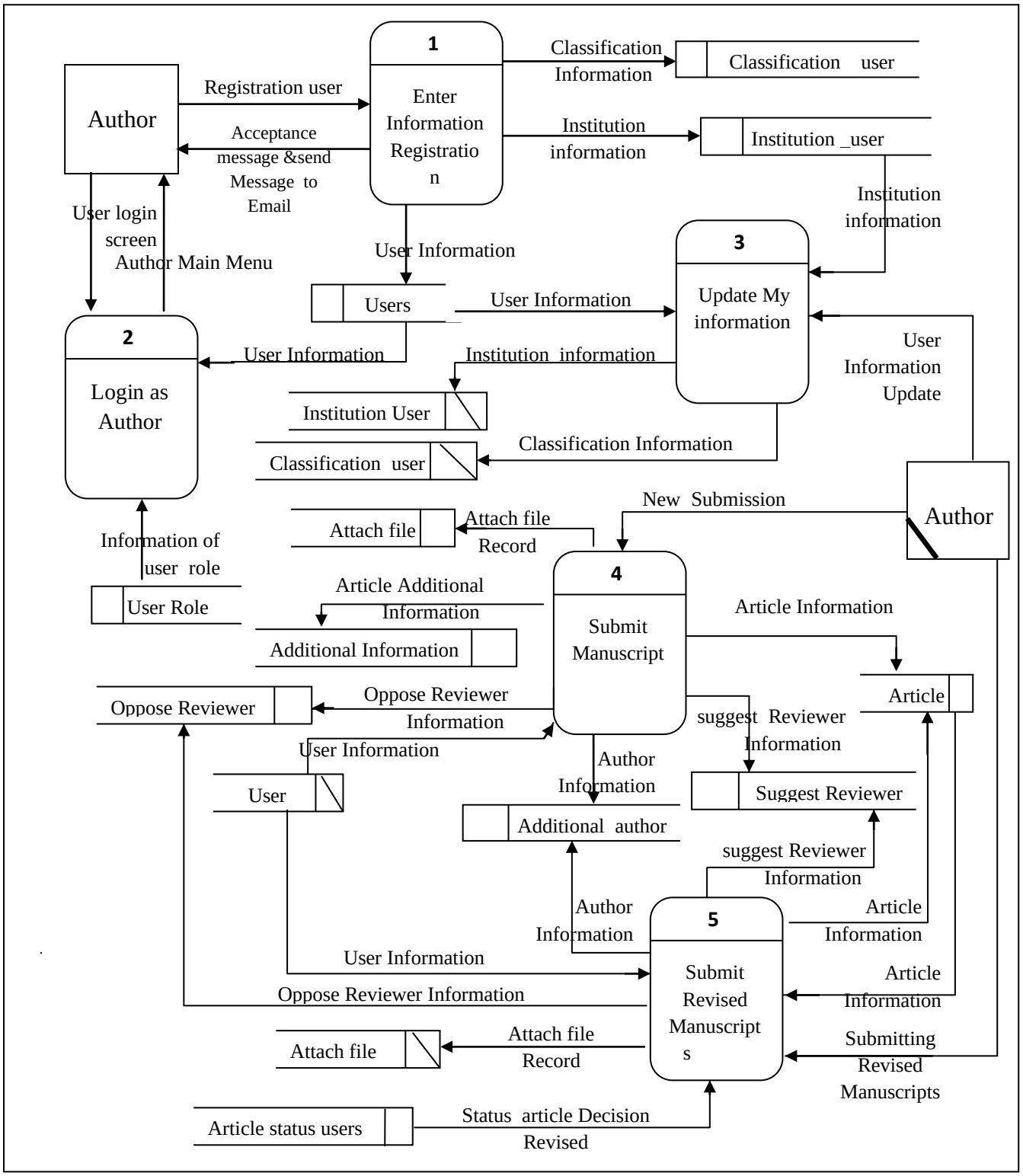


Figure 3-4 :Author process

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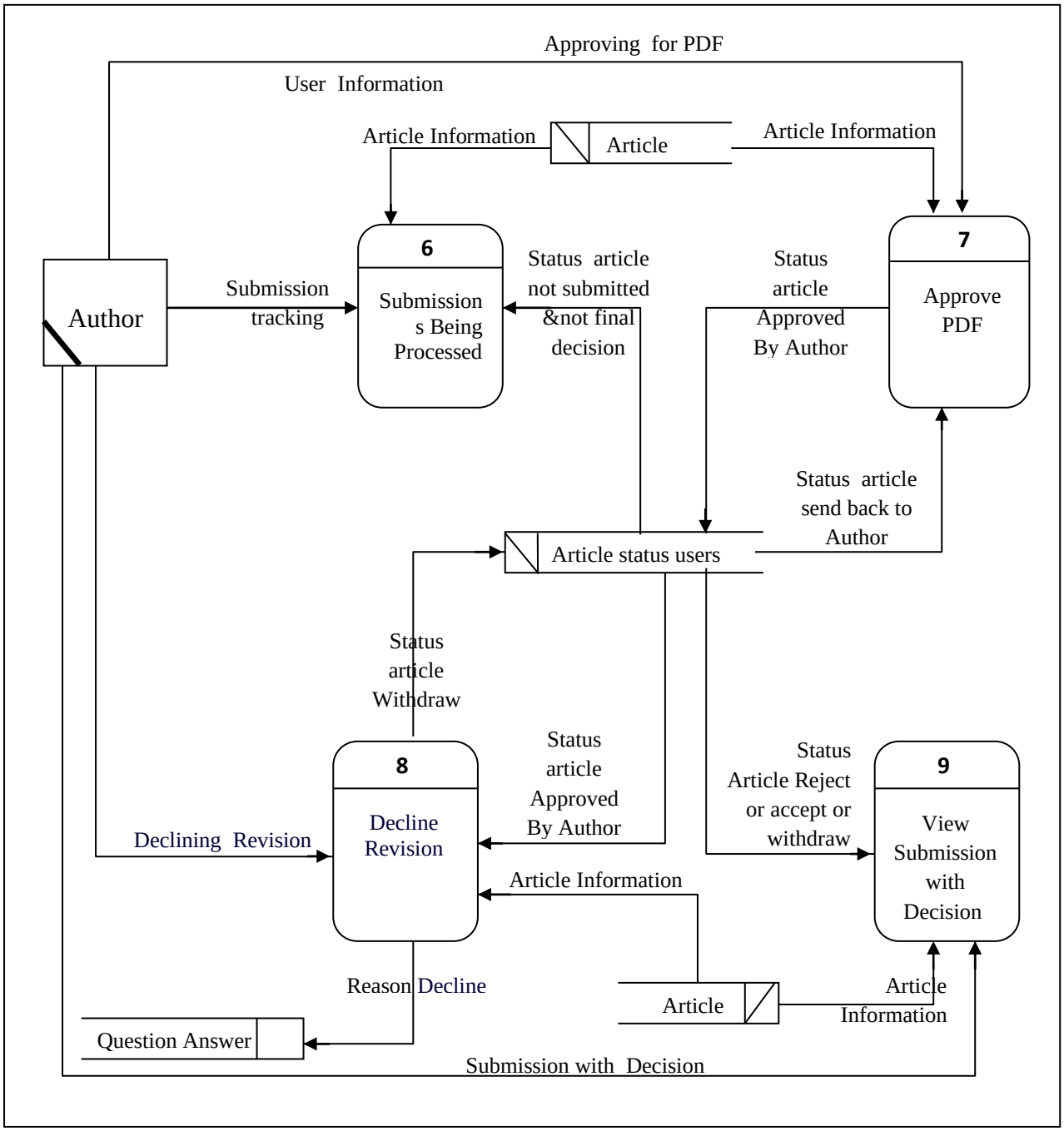

Figure 3-5:Author process

Editor process diagram in Diagram-0

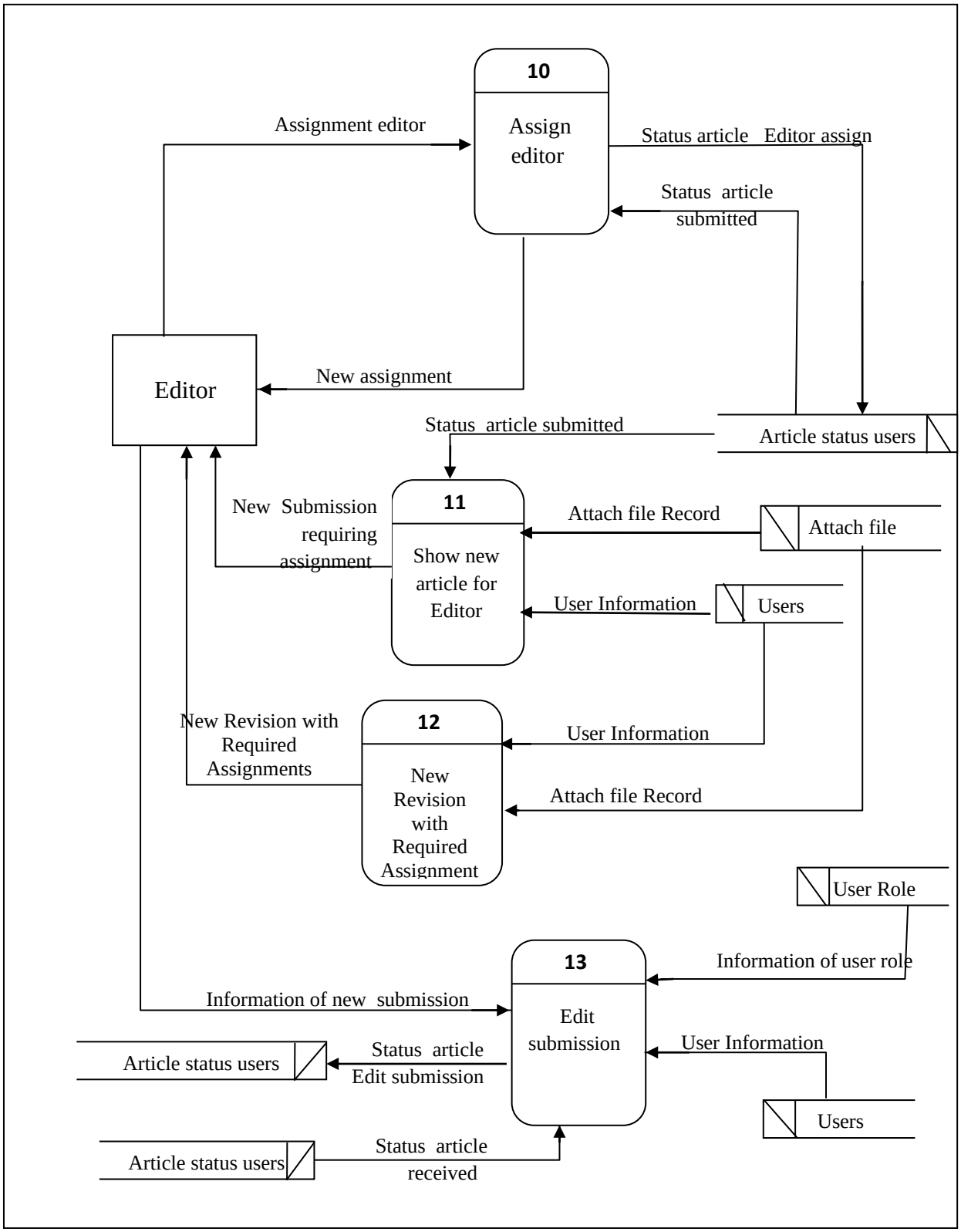

Figure 3-6: *Editor process*

Reviewer process diagram

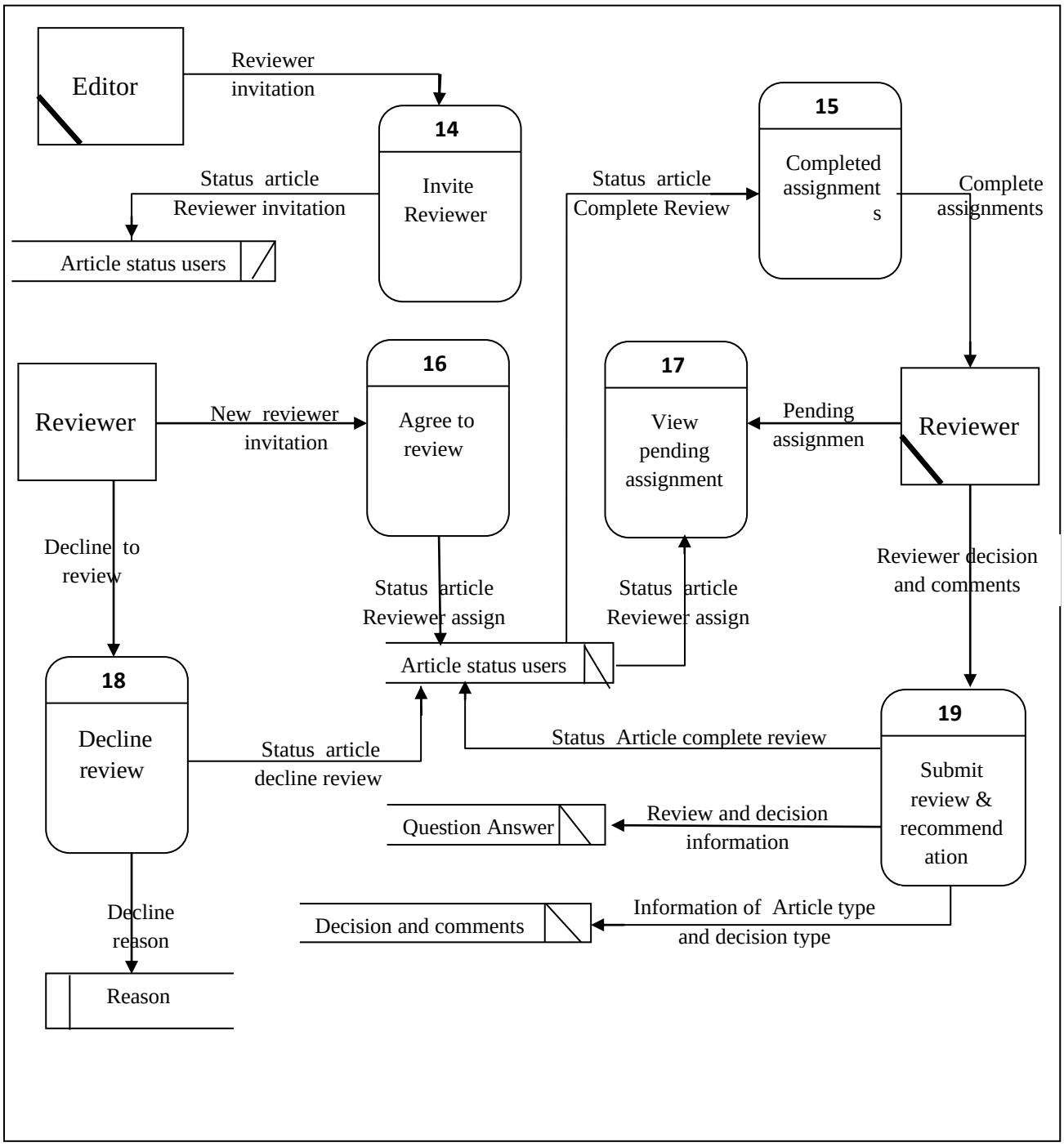

Figure 3-7: Reviewer process

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Editor process diagram in Diagram-0

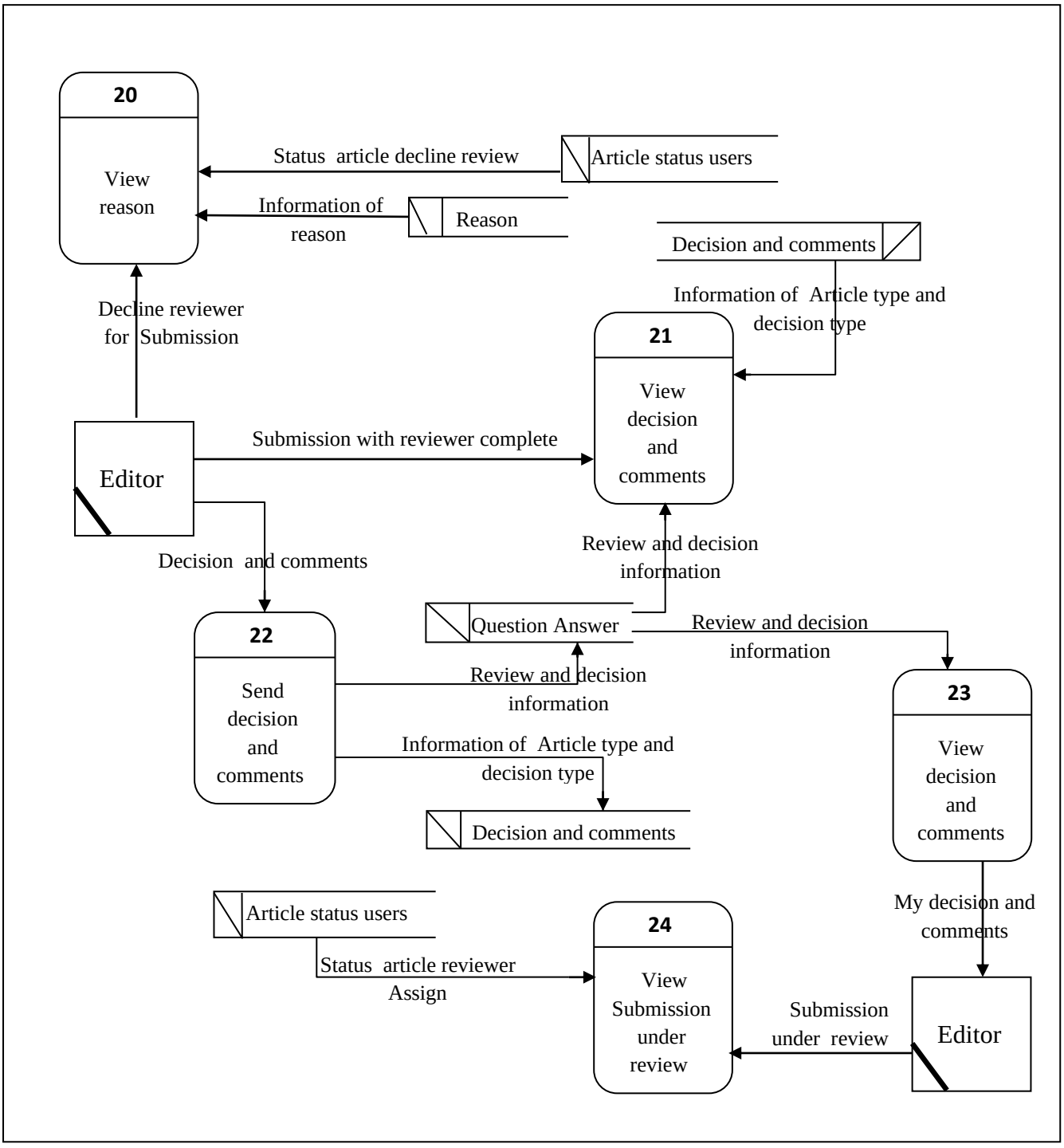

Figure 3-9 : Editor process

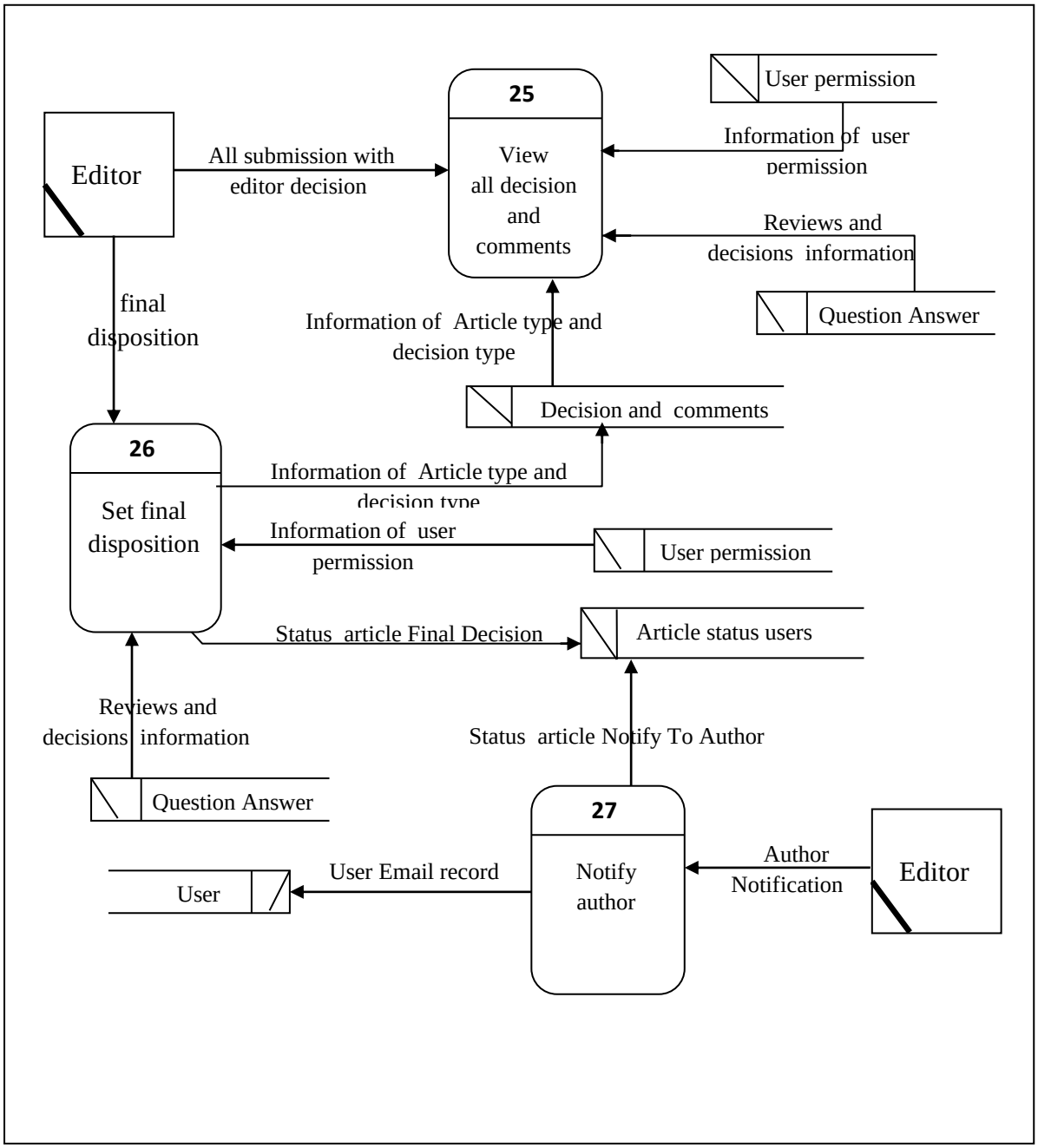

Figure 3-10 : Editor process

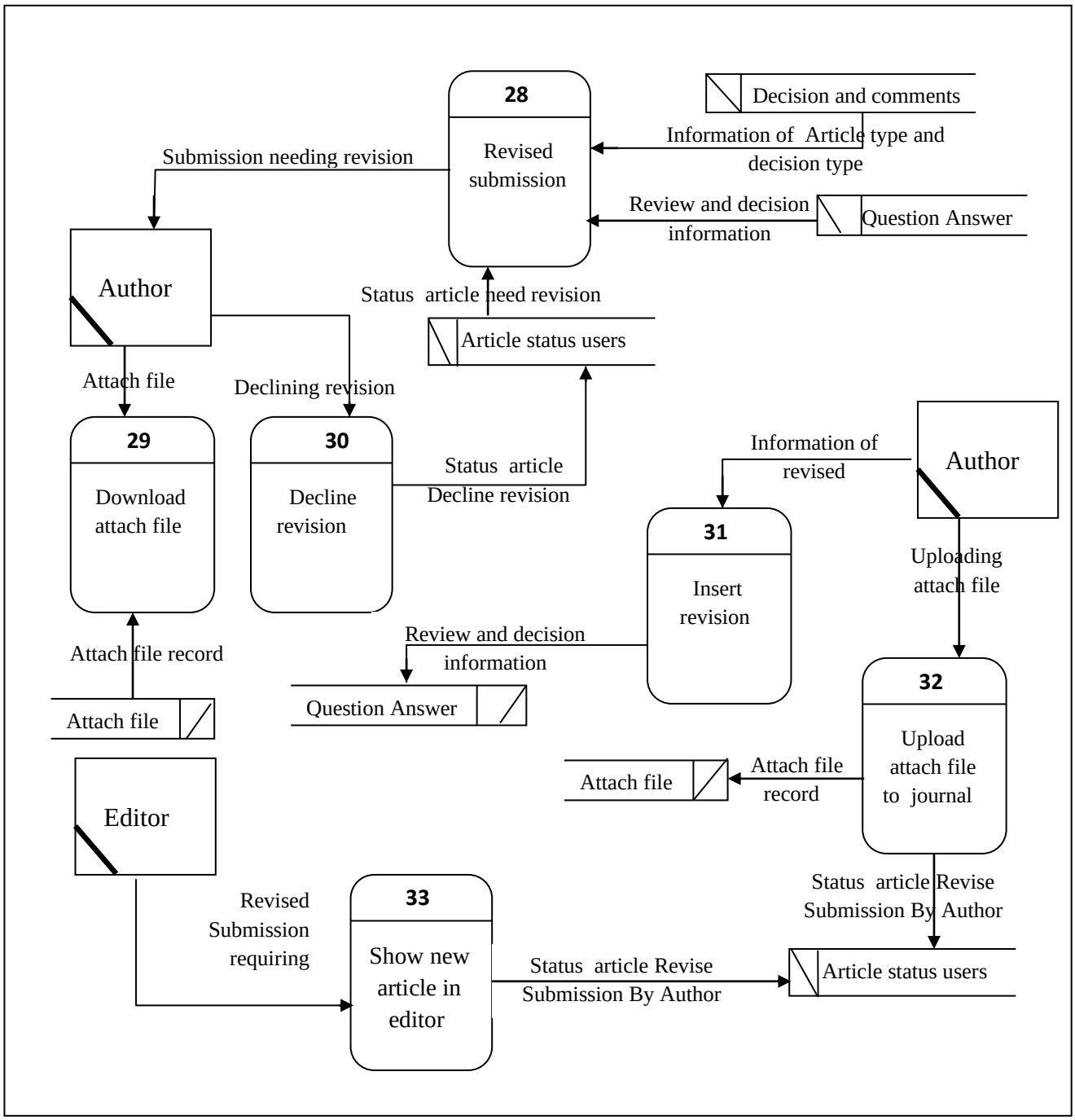

Figure 3-11: Submission process

3.8.3.3 Child Diagram

- Registration User in system

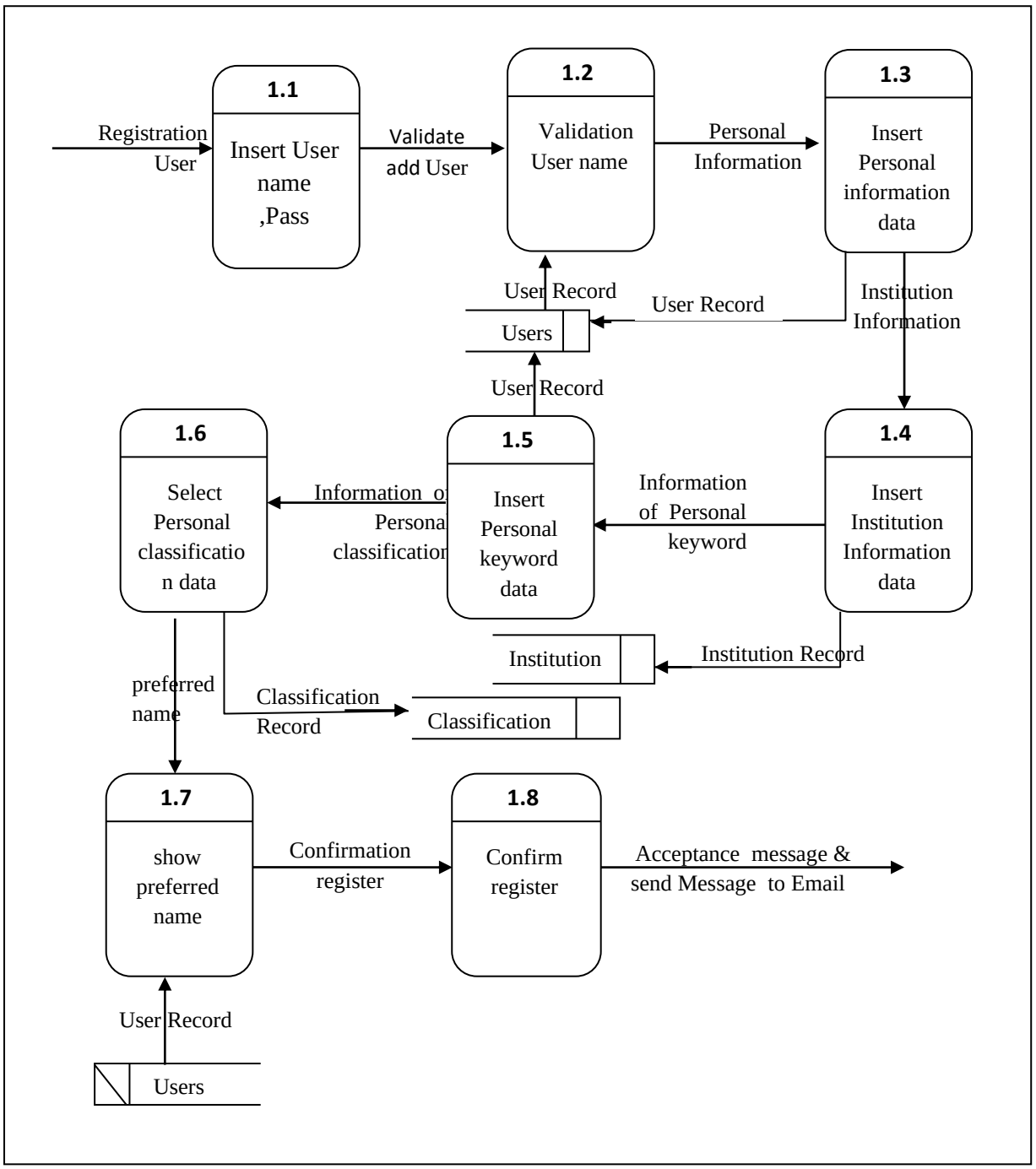

Figure 3-12 : Registration User

- Submit new Article from Author diagram

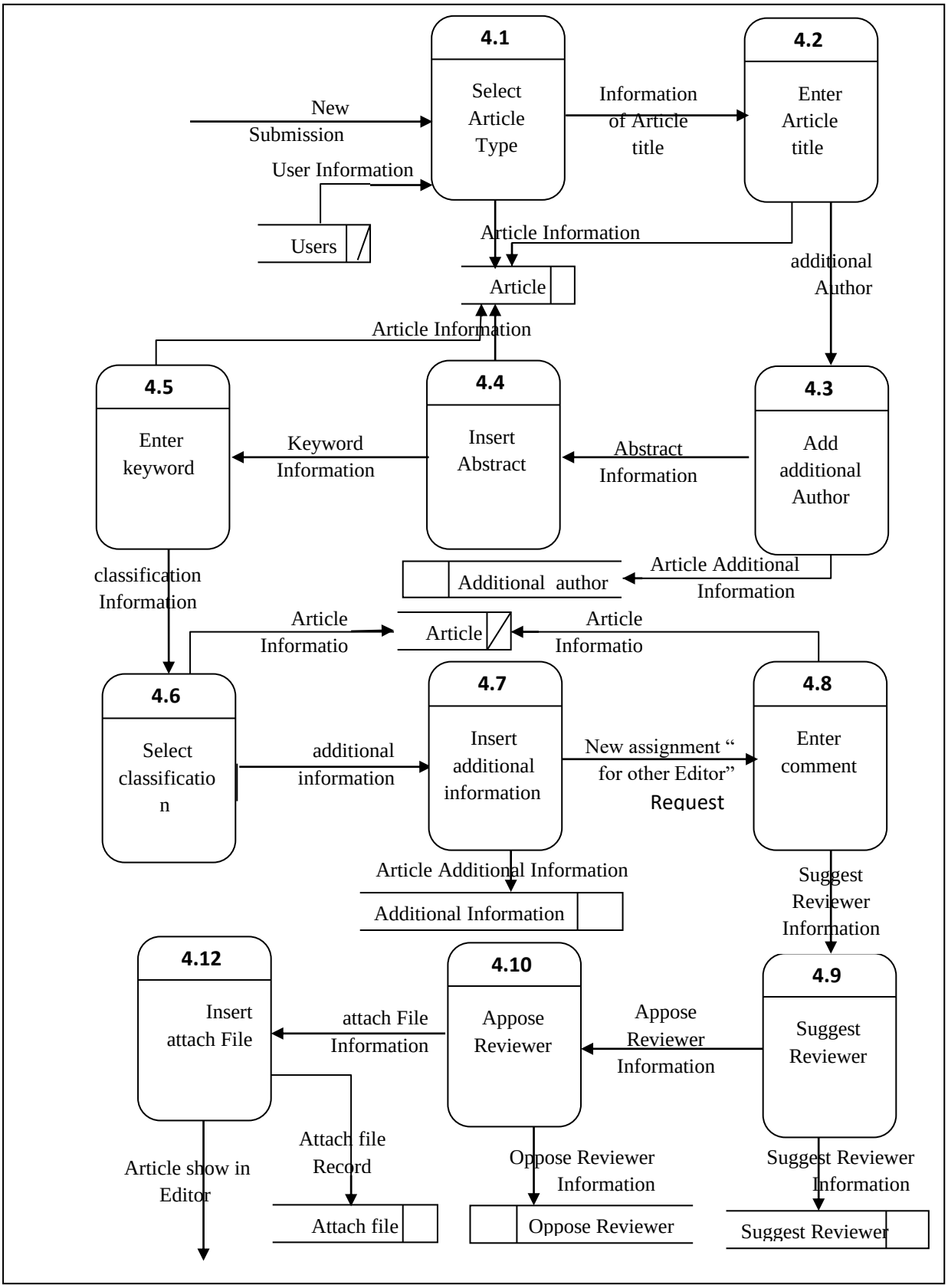

Figure 3-13 :submit new article

-Assign editor diagram

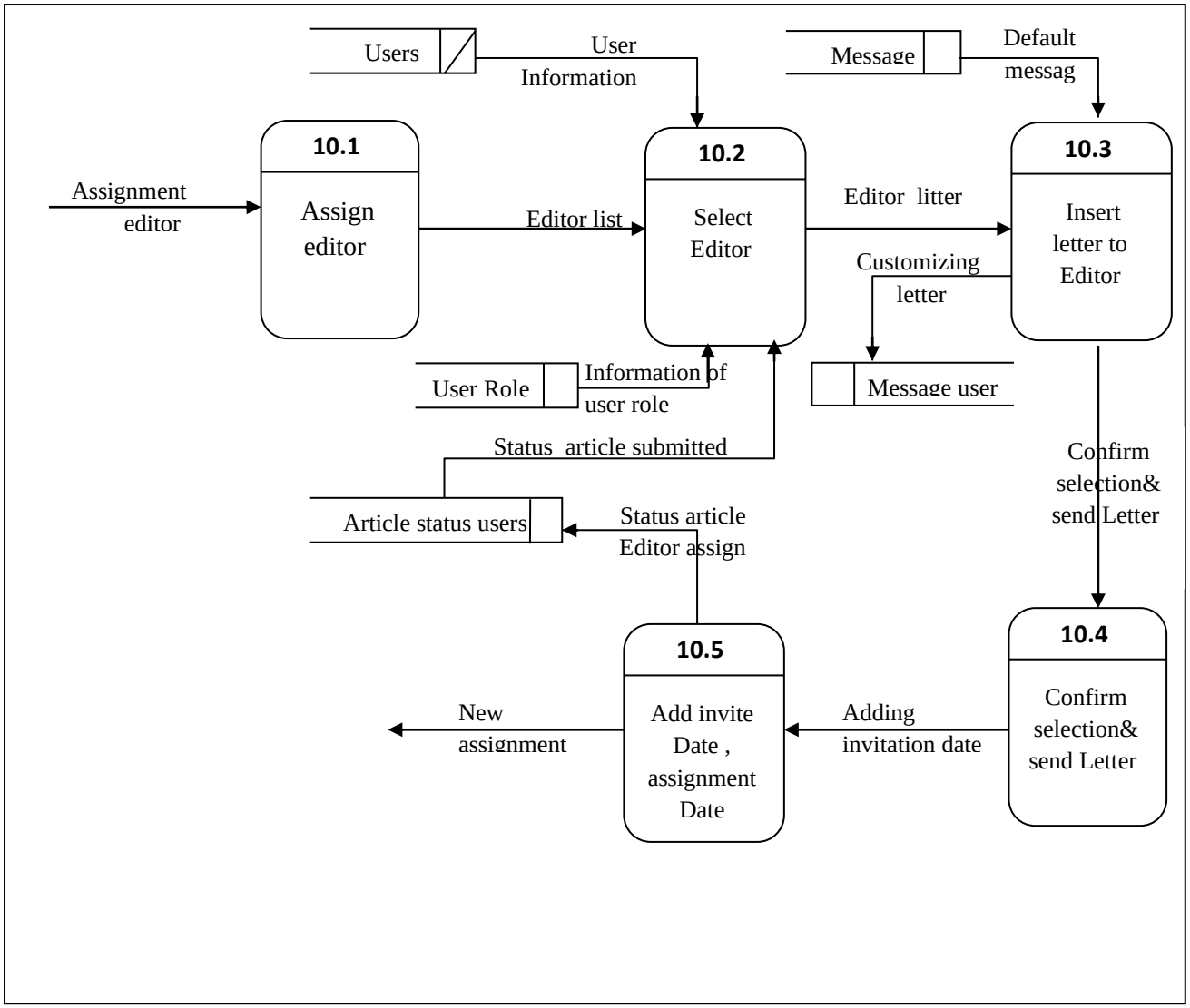

Figure 3-14 :Assign editor

-Edit submission & Send Submission to author

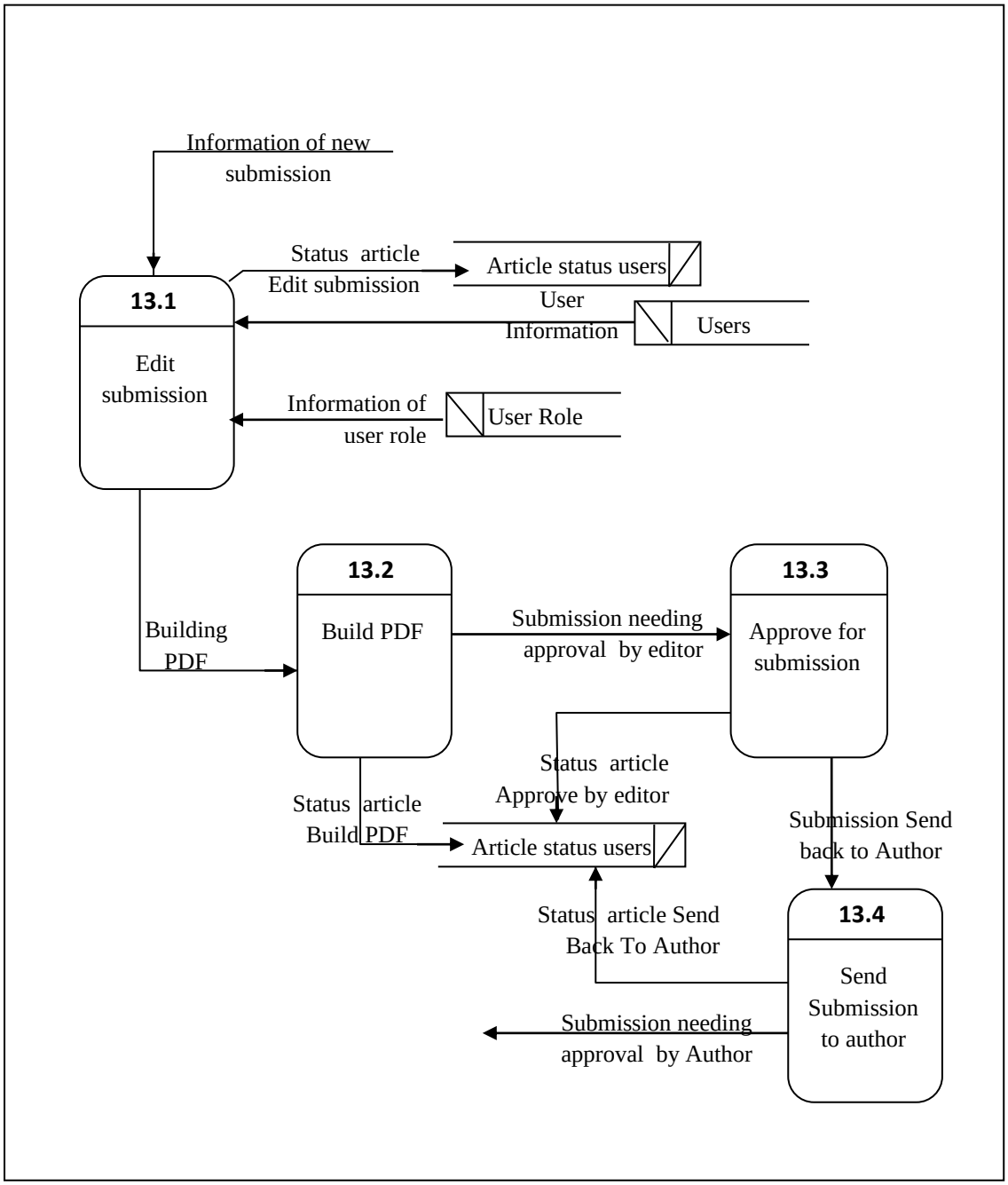

Figure 3-15: Edit submission

-Submit Reviewer decision and comments Diagram

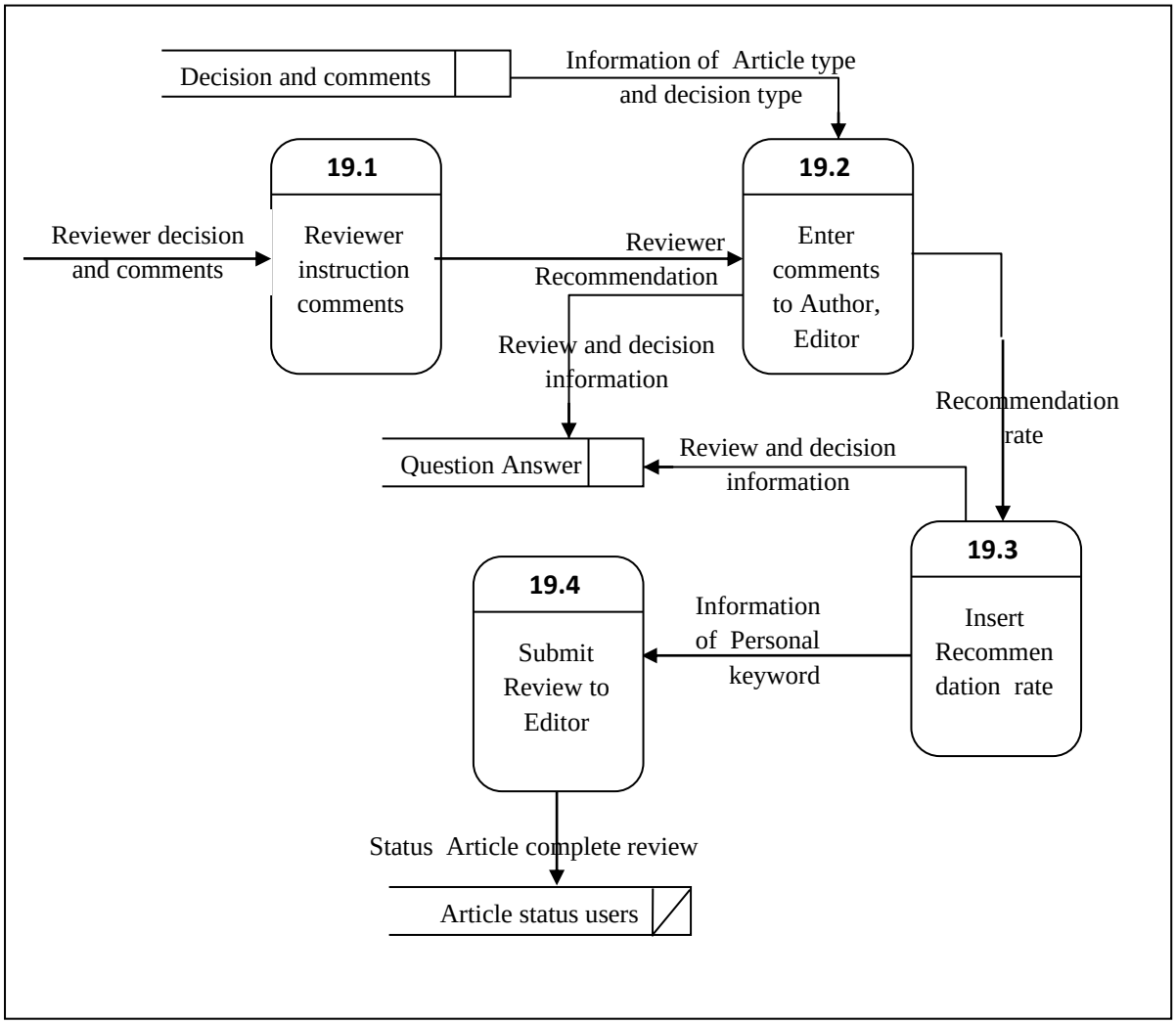

Figure 3-16 : Reviewer decision and comment

3.8.4 Data Dictionary

Data dictionary is a file that contains all used data items in the system. which are ordered with defining and describing for every one. It is a reference that a system analyst needs it in analysis stage in all life ways of the system . It also designs data items and ensures the meaning for every one in the system ,as it's shown in table 3-2**,** *[7].*

It shows the specialties(Items) description , data dictionary.

Table 3-2 data dictionary items

Specialty(item)	Purpose(datum)
Item name	It set every item name in the system (software name)
Description	It describes every item in the system
Item type	It sets data type of item (number , letter, data,……etc)
Item source	It means the source from which data come I.e .Does the use enter the data or system?
Where are they used	It means which unit will use this item
Storage	Setting the storage place for an item in the system

We are make special data dictionary for the journal of scientific researches and it are show the specialty for each item in the show System in table 3-3.

Complete table in the appendix.

Table 3-3: data dictionary

Vocabulary Name	Description	Vocabulary Type	Vocabulary Source	Where is using	Storage
User_No	User Number	Integer	Entry by System	In users table	In system data base
User _title	User title	Varchar(50)	Entry by user	In users table	In system data base
User_First_Name	User First Name	Varchar(50)	Entry by user	In users table	In system data base
User _Middle _Name	User Middle Name	Varchar(50)	Entry by user	In users table	In system data base
User_Last_Name	User Last Name	Varchar(50)	Entry by user	In users table	In system data base
User_Password	Password	Varchar(30)	Entry by user	In users table	In system data base
User_Email_Address	Email Address	Varchar(50)	Entry by user	In users table	In system data base

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3.9 Entity Relationship Diagram (ERD) Model :

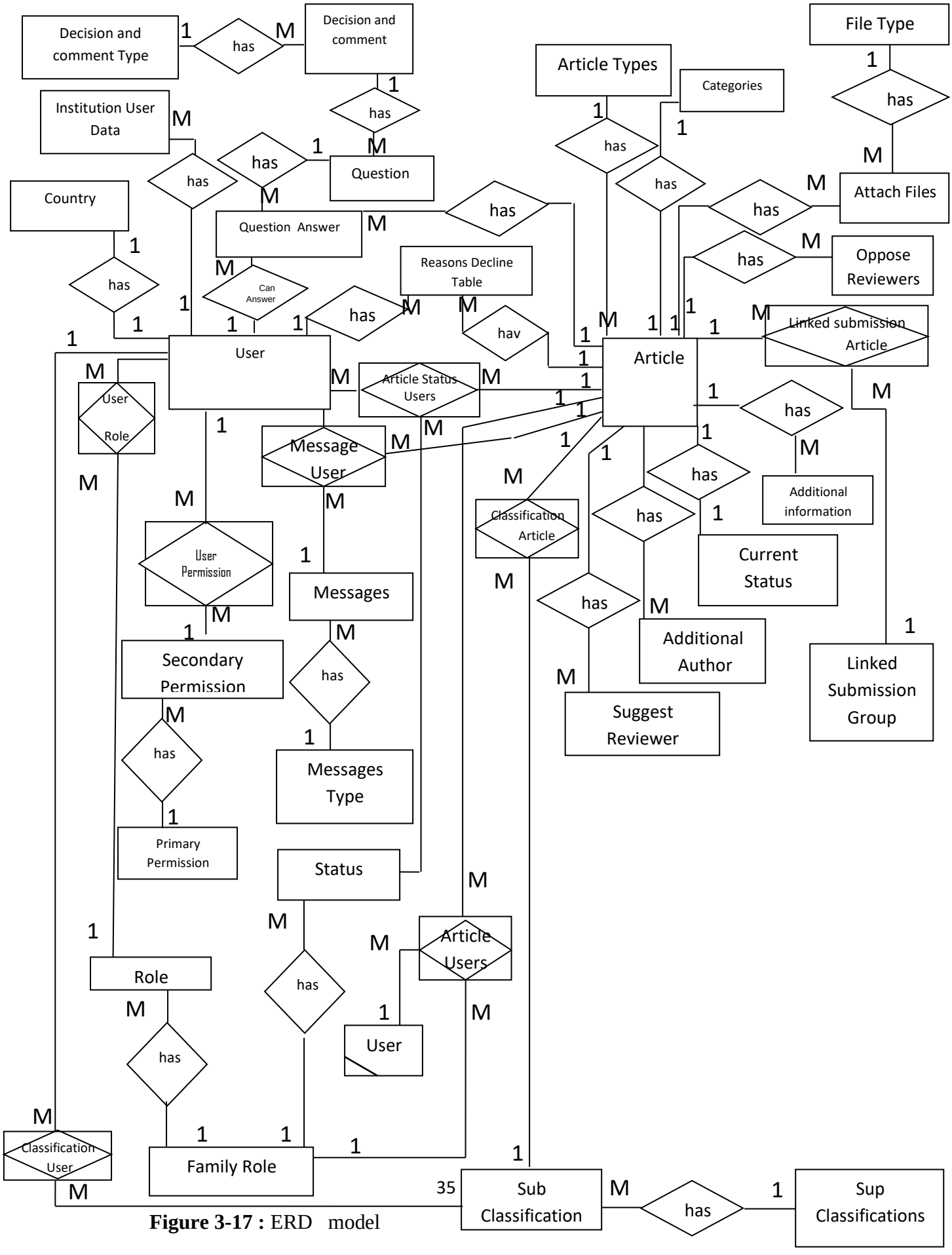

Figure 3-17 : ERD model