1. What is API? Why it is important in effective programming? Explain the implementation procedure of API in programming.

* API stands for **Application Programming Interface.** It is the interface that allows the applications to interact with an external service using a simple set of commands. Here we do not need to know the logic of the service, just send a simple command and the service will return the necessary data.

For example, if we want some latest news, then we go to **Hamro Patro** and refer to the “topnews” command and in response the service will send us the latest collections of sensations.

* In the lack of APIs, the functionality of the applications would be limited. APIs tie the disparate applications together, allowing them to complement each other. If there is no APIs, each application would be limited to a narrow list of its own functions without the possibility of expanding it to something that others have already invented and used for long time.

For example, if my applications need some data regarding weather, then it would be very problematic for me to create a whole new system for weather forecasting. So, I can use a separate weather forecasting API for my application which is an act of effective programming.

Moreover, it also updates my applications with latest technology.

* The implementation procedure of API in programming is given below:
* Get an API key:

An API key is the unique string of letters and numbers which needs to be added to each request so that the API could identify the user. API key can be gained simply by registering in the API server via Google or Facebook or else with the necessary identifying data such as user name, password and emails.

* Test API endpoints:

After receiving API keys, one can refer to the API endpoints to check if everything works as expected. For this, one can use REST client like Postman. Immediately after registering with the API server, one can go to the API section of their interest, enter the necessary data directly in the API pages and see the endpoint’s answer.

* Create an app:

After checking the endpoints, one can start creating the application, including calls to the necessary API.

1. What are the errors that arises while implementing the algorithm?

The errors that arises while implementing the algorithm are as follow:

* Syntax error:

Any violation of rules and poor knowledge of the programming languages results in syntax errors which is detected by compiler. Sometime a single syntax error can results in the long list of error and can be removed all the errors by simply correcting single syntax error.

* Logical error:

Logical errors cannot be detected by the compiler and cause incorrect results. It is due to the lack of correct translation of algorithm into program and lack of clarity of role of operation.

* Run-time error:

It is the error that arises during the execution of program. Example dividing by zero error, referencing an out ranged array element. A program with these kind of errors will run but produce erroneous results or terminate the program.