

IMPLEMENTING ADVANCED INTERNET DOWNLOAD MANAGER

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ABSTRACT:

Internet is becoming more popular with its large volume of information. From the internet we can download any information as per our requirements. The internet downloads are like client/server transactions. Client will request to download a file from the server on the internet. Then the server responds by sending a requested file to the client. If we are connected to the internet, then there may be a chance of getting computer crashes that can leave the download dead in its track. Restating a download from the scratch is very time consuming and frustrating experience. The interrupted downloads can be resumed. It allows us to recommence a downloading from the point at which a download terminates instead of begin anew. In classic download scenario, the entire file can be downloaded from starting to ending. If the transmission of the file is interrupted for any reason then the progress made toward completing the downloading of a file is lost. This paper presents a robust download manager called "Advanced Internet Download Manager (AIDM)", which will solve many of the problems associated with downloading process. The proposed download manager aims at managing multiple downloads simultaneously and handling bandwidth problems. The AIDM tool will also be able to handle resuming the interrupted downloads. It can also allow us to pause and resume a download at a specified point. If the transmission of file is interrupted for any reason then the download manager can pick up from where an interruption occurs and then downloads only the remaining fragment of the file.

Key Words: Download Manager, URL, Internet Downloading, Download Monitor, AIDM.

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1. INTRODUCTION

Internet is a vast repository of various resources like programs, documents, movies, pictures etc. Internet users try to access and download the internet resources for their personal needs. Therefore there is a great demand for downloading tools with the following features like: increased download speed and resuming capabilities. So the need for Internet Download Manager became apparent with the public availability and accessibility of internet. Downloading content from internet has become a common place activity for all internet users in the home, in business and in school. All internet users download content from time to time typically programs, games, flash videos, photos, music, and documents [1].

Sometimes downloading content form internet can be troublesome. The download may fail due to unexpected reasons. Downloads take excessive time due to larger file sizes or lesser bandwidths. Some content cannot be downloaded using some basic web browsers. A download manager is a utility designed to fix all the problems discussed. The Advanced Internet Download Manager (AIDM) has been design and developed to meet this purpose.

1.1 What is Download Manager

A download manager is a computer program dedicated to the task of downloading stand-alone files from the Internet for storage. The typical download manager at a minimum provides means to recover from errors without losing the work already completed, and can optionally split the file to be downloaded into 2 or more segments, which are then moved in parallel, potentially making the process faster within the limits of the available bandwidth [9].

Download managers are useful for active Internet users. For dial-up users, they can automatically dial the Internet Service Provider at night, when rates or tariffs are usually much lower, download the specified files, and hang-up. They can record which links the user clicks on during the day, and queue these files for later download. For broadband users, download managers can help download very large files by resuming broken downloads, by limiting the bandwidth used, so that other internet activities are not affected and the server is not overloaded, or by automatically navigating a site and downloading pre-specified content (photo galleries, MP3 collections, etc.). This can also include automatically downloading whole sites and regularly updating them [7]. The following diagram explains a typical downloading scenario:

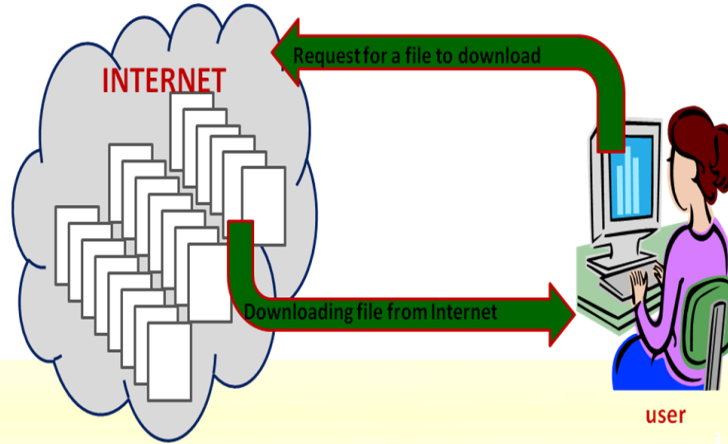


Figure 1: Internet Downloading Scenario

2. Related Work

Advanced Internet Download Manager (AIDM) is very comfortable and enjoyable program for downloading files from the Internet. Furthermore, as an accelerator (accelerator), the program gives you a wonderful opportunity with just one click to download any background visited your sites - music, videos, flash media. The program is a lightweight but powerful and is known for its intuitive and friendly interface. Files are automatically sorted by type into separate folders - Applications, Music, Video. With this product you can download lists of files or entire Web sites. The download process is very easy and convenient. An interesting feature of the application is the automatic setting and adjusts the parameters of the download-process depending on the speed of network connection, file size, server load, etc.[8]

Internet Download Manager (IDM) is one of the fastest managers working on the principle that divides files into segments and then pull them together. The Download Manager will resume broken downloads, extremely powerful and advanced Scheduler downloads, the process of Speed up downloading files from the Internet, Ability to download multiple files simultaneously.

2.1 Understanding Internet Downloads

Internet downloads in their simplest form are merely client/server transactions. The client, your browser, requests to download a file from a server on the Internet. The server then responds by sending the requested file to your browser. In order for clients to communicate with servers, they must have an established protocol for doing so. The most common protocols for downloading files are File Transfer Protocol (FTP) and Hypertext Transfer Protocol (HTTP) FTP is usually associated generically with exchanging files between computers, whereas HTTP is usually associated specifically with transferring web pages and their related files (that is, graphics, sounds, and so on). Over time, as the World Wide Web has grown in popularity, HTTP has become the dominant protocol for downloading files from the Internet [1].

2.2 Potential problems of Internet Downloading

The following are some of the potential problems with which an internet user encounters while downloading an internet resource, such as a file, document, images, videos, programs etc

- Low functionality
- Download managers are developed under very large components.
- These are very large in size.
- These occupy a very large amount of Main Memory.
- Security problem.
- Future improvement is difficult.
- Miscellaneous.

2.3 Key benefits of download managers

The key benefits of download managers when compared to using your web browser to download content are[6]:

- *Resume broken or failed downloads:* Download managers can resume a download where it failed, thus saving you significant time and bandwidth. Most web browsers cannot do this.
- *Schedule downloads for a later date:* Download managers let you schedule downloads for a later time of day, or schedule downloads for regular intervals such as daily or weekly. Web browsers cannot do this.
- *Download a collection of files:* Download managers can download a numeric or alphabetic series of files from a web site, so you can download collections of photos from photo gallery web sites. Web browsers cannot do this.
- *Organize downloaded files on computer:* Download managers use folders and categories to help you organize your downloaded files on your computer, making it easy to find files at a later date. Web browsers cannot do this.

2.4 Need Of Advanced Internet Download Manager (AIDM)

Advanced Internet Download Manager (AIDM) is a tool to increase download speed, resumes and schedule downloads. Have you ever wanted to increase your download speed from 4 kbps to 8 kbps? If you answered YES then you need an Internet Download Manager (AIDM). It can and will increase your download speed so you can get the files you want quicker and easier than ever before [6].

AIDM is needed to download the data from internet based upon the user requirements. AIDM allows us to download large amount files than some standard browsers can support. AIDM is needed to manage multiple files/documents that are downloaded from the internet [6].

3 Methodology

The Advanced Internet Download Manager is a tool developed for managing the internet downloads and makes simple work of resuming the interrupted downloads. It can also allow us to pause and resume a download.

3.1 Frame Work

The process of internet downloading is a kind of client/server transaction. This means, whenever the user needs to download an internet resource from the internet, then the user has to send the Uniform Resource Locator (URL) of that particular internet resource to the server. In response to the request from the user, Server will connect to the internet and searches for the resource which is identified by its URL. After the resource is located, the server starts downloading the resource and the resource will be saved in the local system. The Architecture of Advanced Internet Download Manager (AIDM) is shown in the following figure:

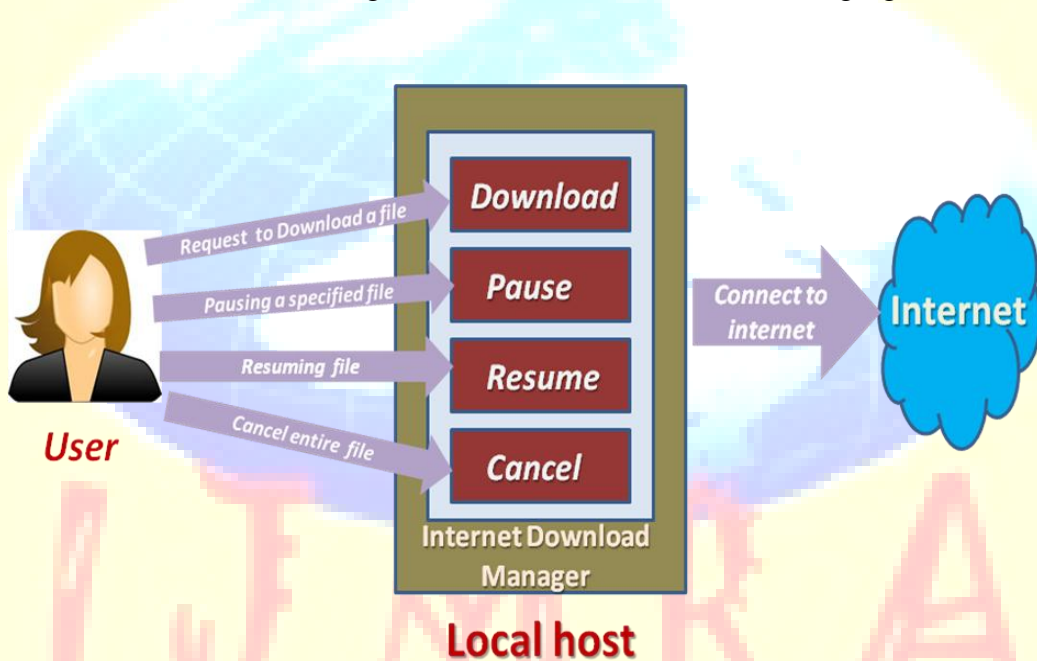


Figure 2: Architecture of Advanced Internet Download Manager

3.2 Algorithm for Advanced Internet Download Manager:

Input: Specified file url to be download.

Output: Successfully downloaded file.

Method:

Step 1: Enter the url of the file to be download.

Step 2: A connection to the download's URL is opened by calling `url.openConnection()`.

Step 3: Next check the response code of the url to find out whether the specified url is valid or not by using,

```
if(connection.getResponsecode()/100!=2)
{
    Error();
}
```

Step4: Next check the content length of the url by using,

```
If(connection.getContentlength(<1)
{
    Error();
}
```

Step5: The size variable has to be set to the complete size of the downloading file.

// open file and seek to the end of it

```
File=new RandomAccessFile(getFileName(url),"rw");
```

```
File.seek(downloaded);
```

Step6: While status is downloading then the actual download process begins.

```
while (status == DOWNLOADING)
{
    //Size buffer according to how much of the file is left to download.
    byte buffer[];
    if (size - downloaded > MAX_BUFFER_SIZE)
    {
        buffer = new byte[MAX_BUFFER_SIZE];
    }
    Else
    {
        buffer = new byte[size - downloaded];
    }
    // Read from server into buffer.
    int read = stream.read(buffer);
    if (read == -1)
        break;
    // Write buffer to file.
    file.write(buffer, 0, read);
    downloaded += read;
}
```

4. Results and Discursion

In this section, we describe the experimental results we obtained for the Advanced Internet Download Manager. The Advanced Internet Download manager has been implemented using Java programming language for downloading multiple files from the internet.

Advanced Internet Download Manager (AIDM) is one of the fastest download managers working on the principle that divides files into segments and then pull them together. AIDM is one of the best resources to download things from the internet, faster and safer.

The following screen shots show the experimental results of AIDM:

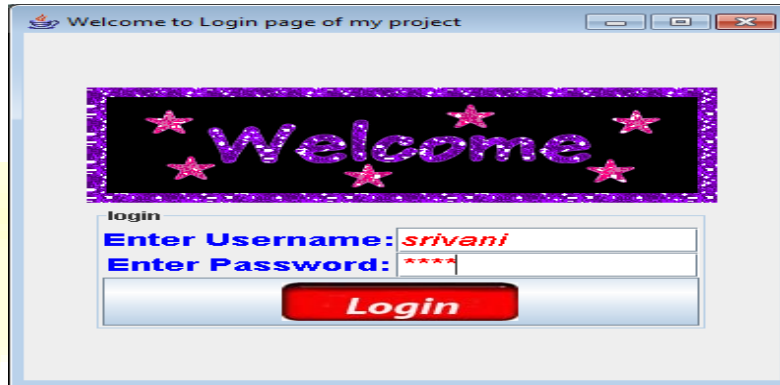


Figure 3: Login window of AIDM

When the user has successfully logged, the main window of the (AIDM) as shown in following fig,



Figure 4: Main window of AIDM

The main window of the AIDM consists of two important buttons: (1) Local Search (2) Internet. The button Local Search is used to search the keyword in all drives of the computer. When the Local Search button is clicked it opens a Local search Engine window, which allows us to search for a keyword in a particular drive and display the result as shown in following fig,

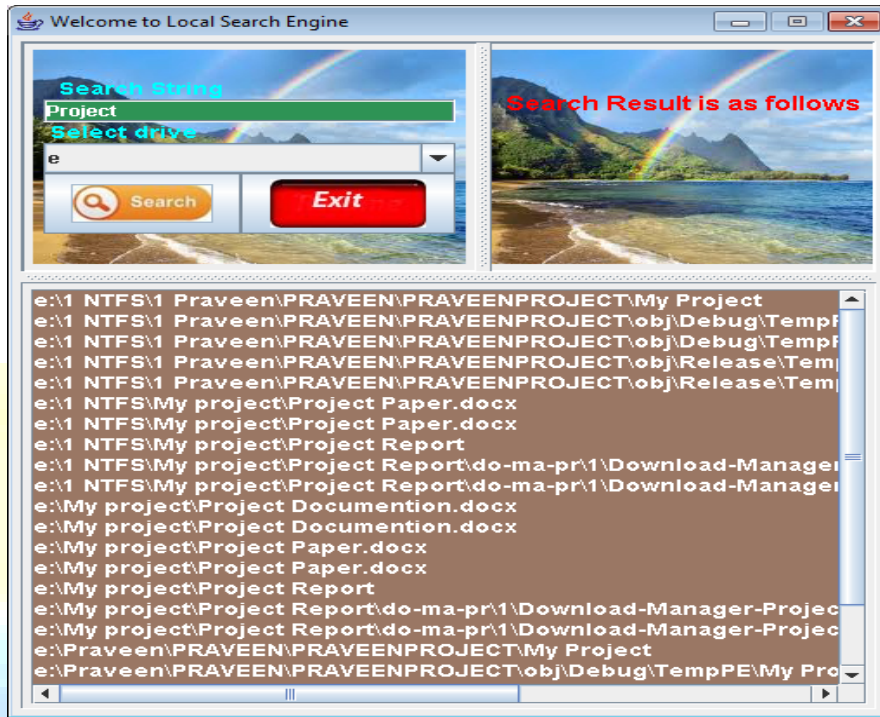


Figure 5: Local Search Results Window

The second button in main window of AIDM is the Internet button, which is used to download files from the buttons from the internet. When the Internet button is clicked the internet Download manager window will be opened as shown in following fig,

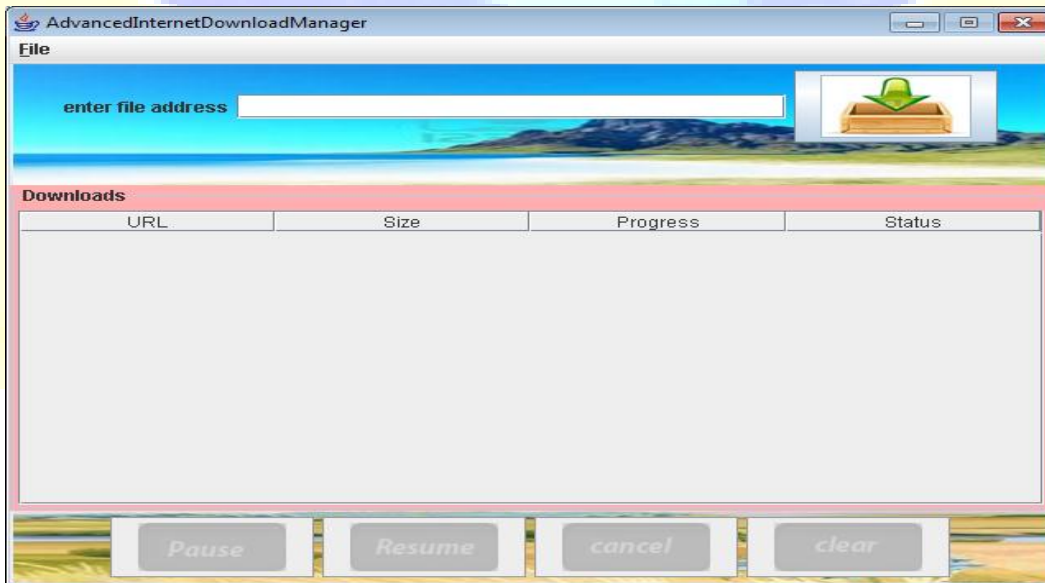


Figure 6: AIDM Internet Search Window

After the Internet Download manager window is opened, we have to enter URL address of the file in text box. Then click on the button AddDownload button to start the downloading process of the file as shown in following fig,

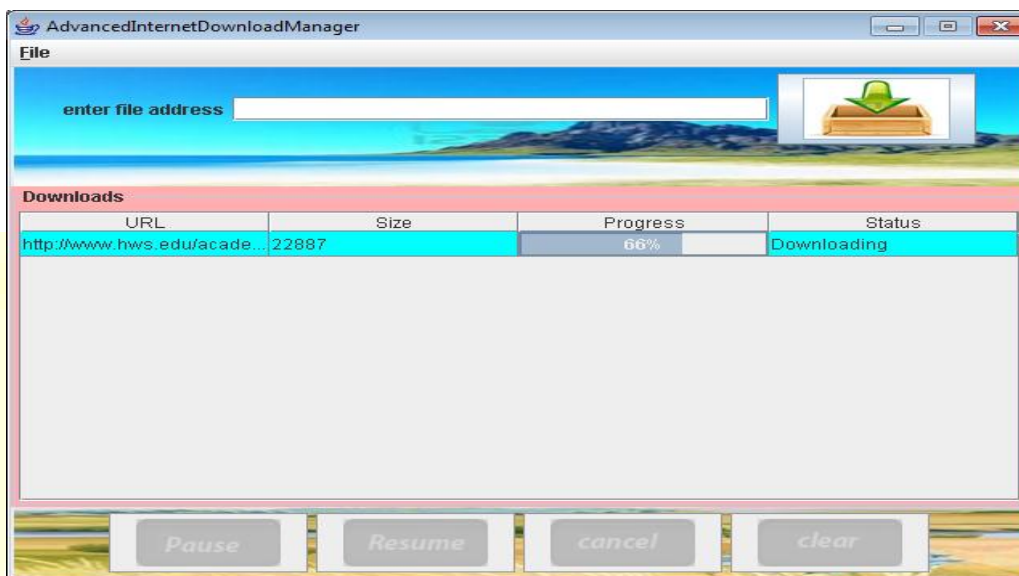


Figure 7: Downloading a single file using AIDM

During the downloading process of a file we may capable of pause, resume and cancel the downloading file by using various buttons. If we want to pause the current downloading file , first we have to select the file then click on pause button as shown in following fig,

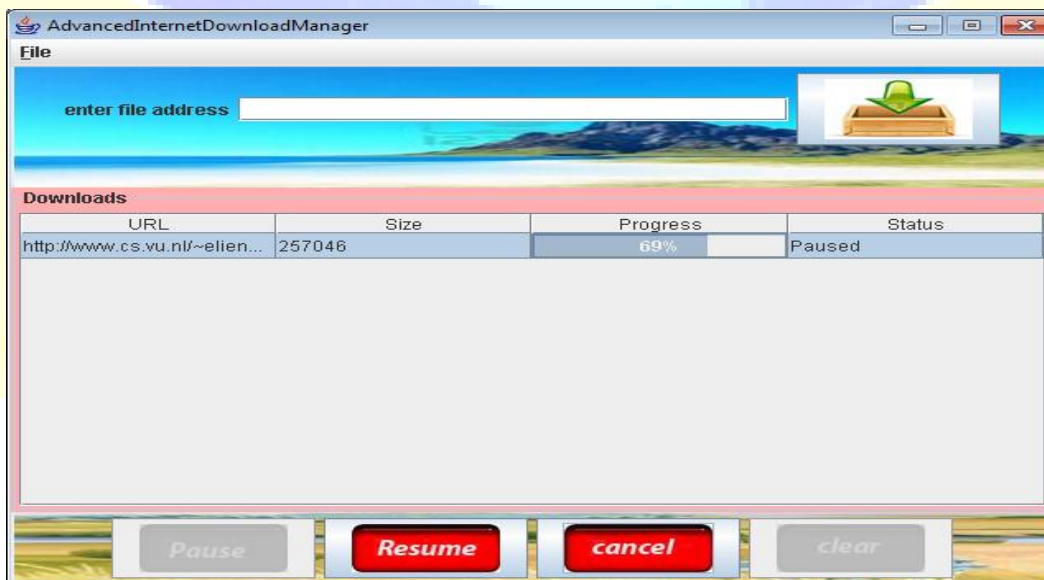


Figure 8: Pausing File Downloading

After the downloading file is paused, if we want to resume that file we have to mention the specific resume point as shown in following fig,

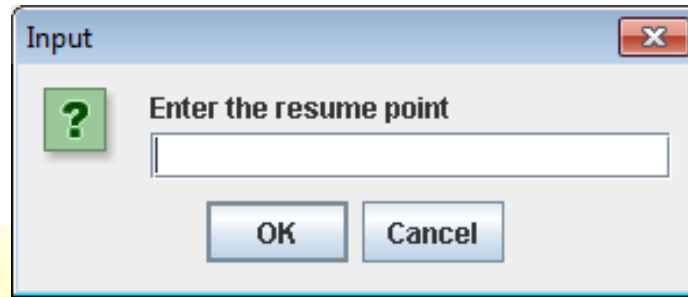


Figure 9: Specifying resume position

In the above input window we have to enter from where we want to resume the paused file. For example we paused a file after 69% is downloaded then we want to resume that file from 26% as shown in following fig,

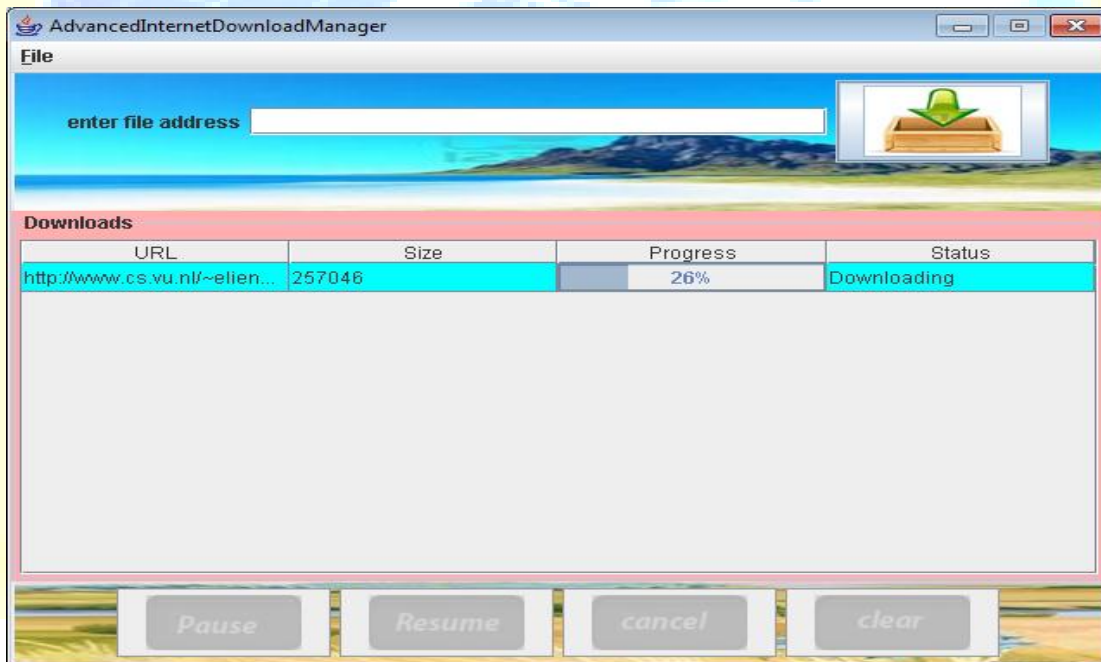


Figure 10: Resume Downloading an Interrupted file

The following screen short of the Download Manager shows the user's ability to download more than one file simultaneously as shown in following fig,

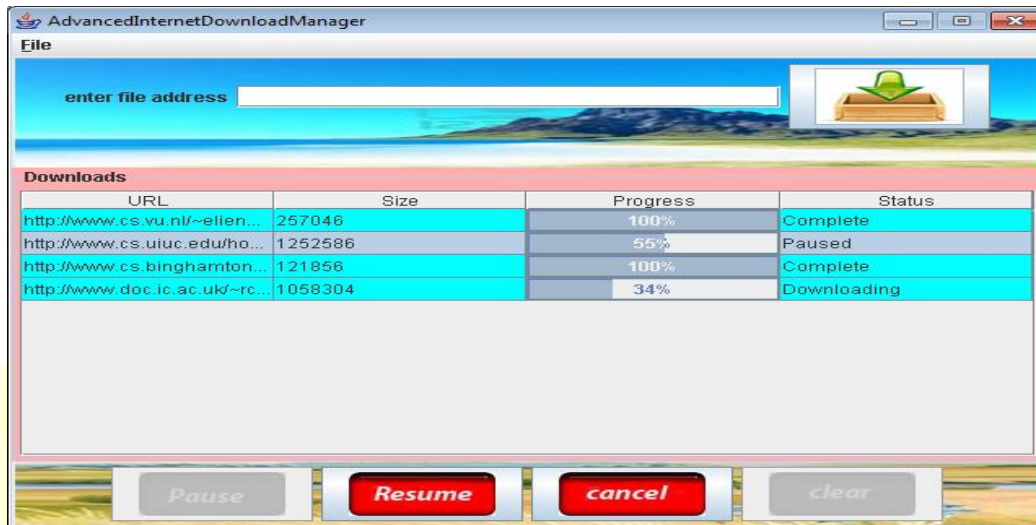


Figure 11: Downloading Multiple files using AIDM

5. Conclusion and Future Work

This paper presents a robust download manager called “Advanced Internet Download Manager (AIDM)”, which will solve many of the problems associated with downloading process. The downloads can each be in one of the following different states: Downloading, Paused, Complete, Error, or Cancelled. The proposed download manager aims at managing multiple downloads simultaneously and handling bandwidth problems. The AIDM tool will also be able to handle resuming the interrupted downloads. It can also allow us to pause and resume a download at a specified point. It is simple, platform independent and effective Graphical User Interface. And also allow the user to resume at a specific point. This software is developed completely in java language. This software is useful for downloading the resources like programs, documents, movies, pictures etc from the internet. It uses a robust algorithm which will optimize downloading times. The following advanced features will be introduced in the further versions: (a) Detecting the virus while downloading a file (b) Support for mobiles.

6. References

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