



**PES University**

**Department of Computer Science**

**UE17CS301- Computer Networks**

**Project Report**

**Project by:**

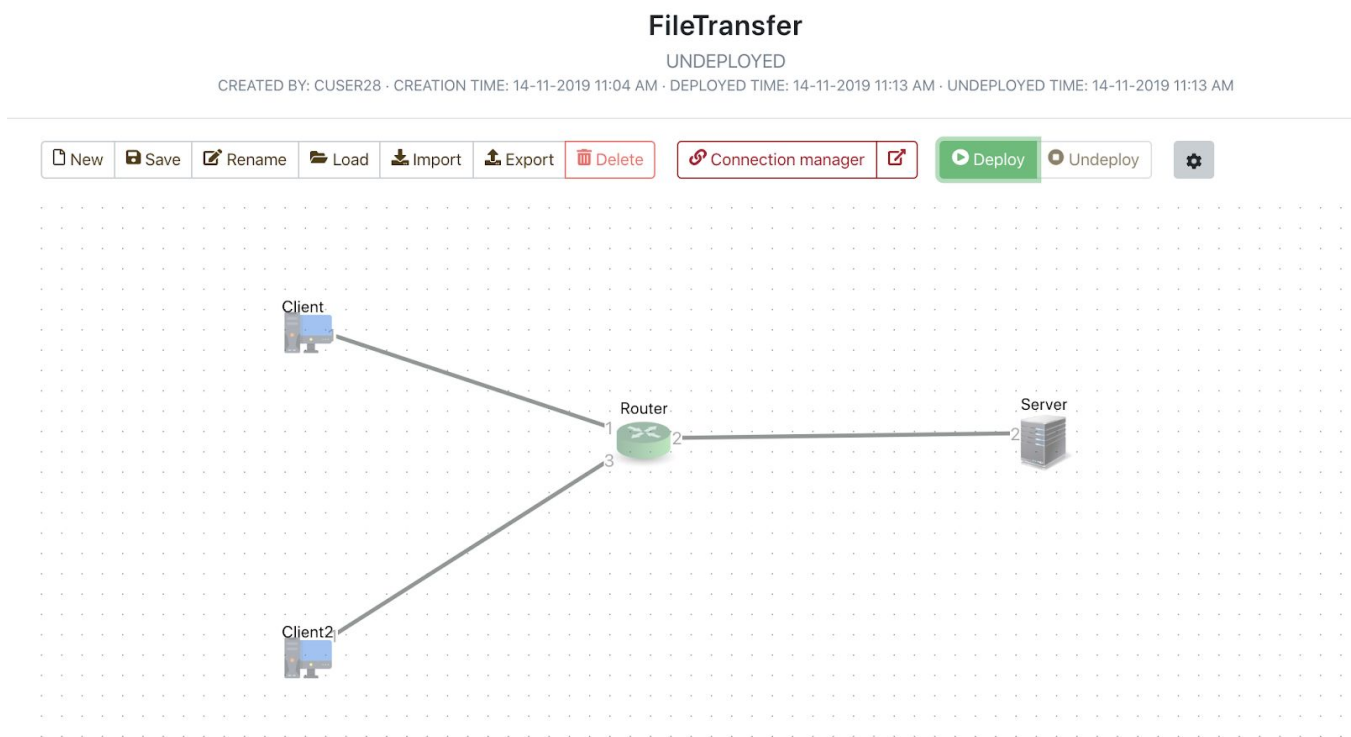
Richa Sharma  
PES1201700662  
5C

Malavikka Rajmohan  
PES1201700794  
5C

## Problem statement:

A server is connected to 'n' number of clients and can send text files across to these clients. We have implemented the transfer of files from one system to another on the same network as well as transfer of files when client and server programs are running on the same system.

## Topology:



## List of Modules Used:

- socket module
- threading module

## **Network Concepts Used:**

- **TCP sockets**

Connection between the server and clients is created by TCP sockets and by specifying the port number. This is used as it requires establishing a communication before communication. It also ensures packet loss does not take place.

## **New Concepts Learned:**

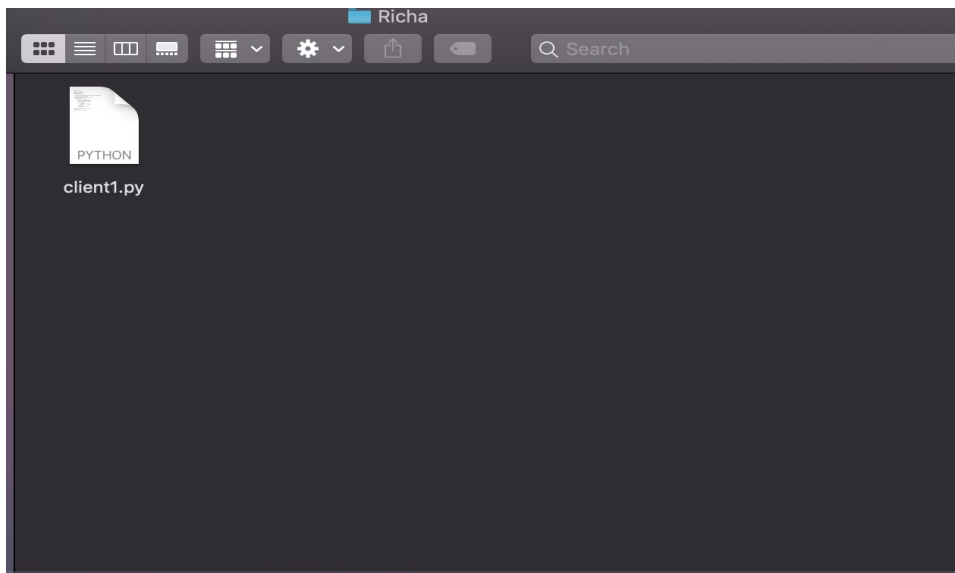
- **Multithreading**

A new thread was created for every client connection.

## Sample Input and Output:

### Case 1: Server and client on different systems

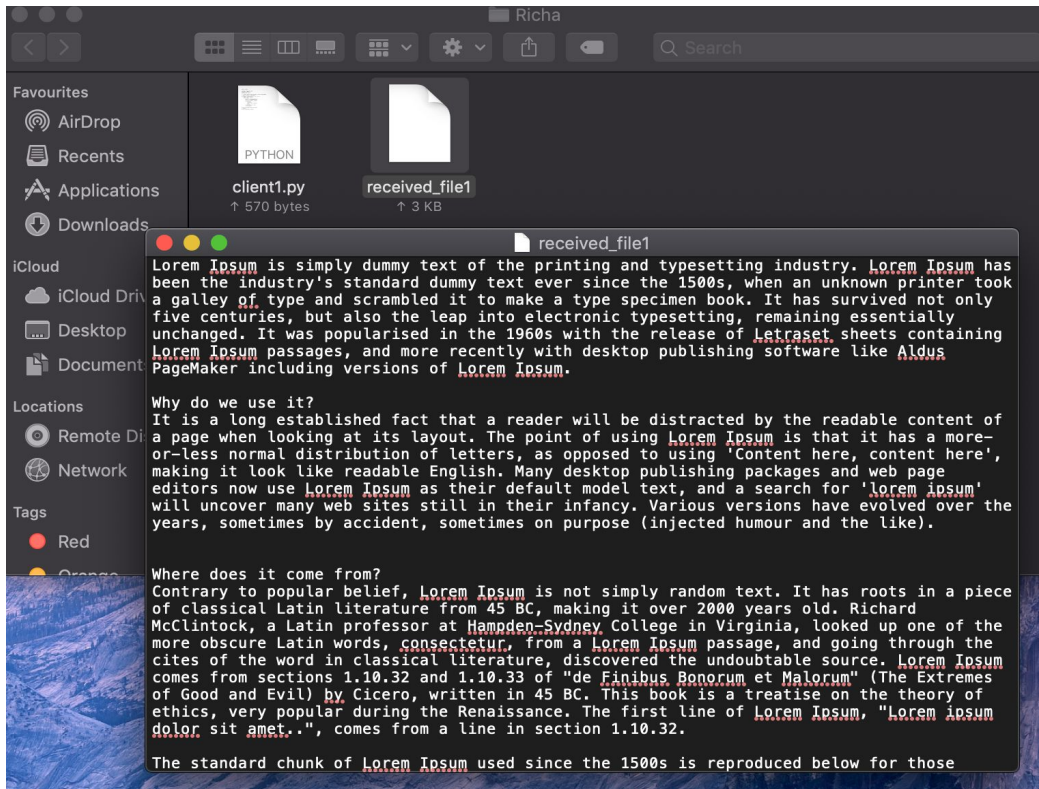
Client before running the program:



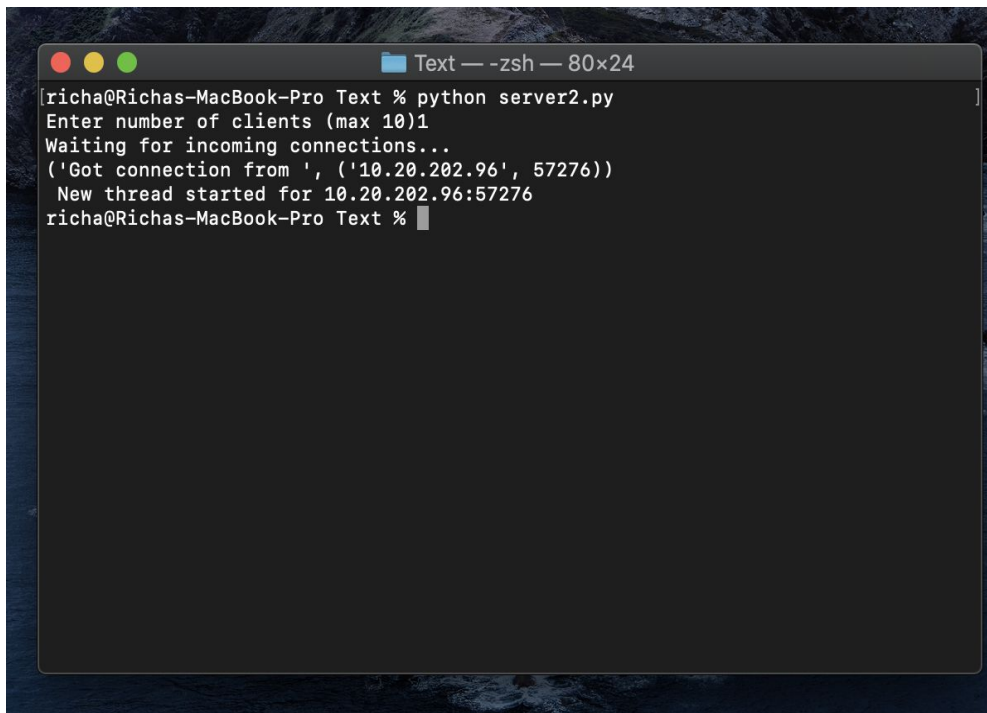
Client after running the program:

```
[(base) Drastis-MacBook-Air:Richa drastivadhar$ python client1.py
file opened
file close()
Successfully get the file
connection closed
(base) Drastis-MacBook-Air:Richa drastivadhar$
```

## Received File on Client system:

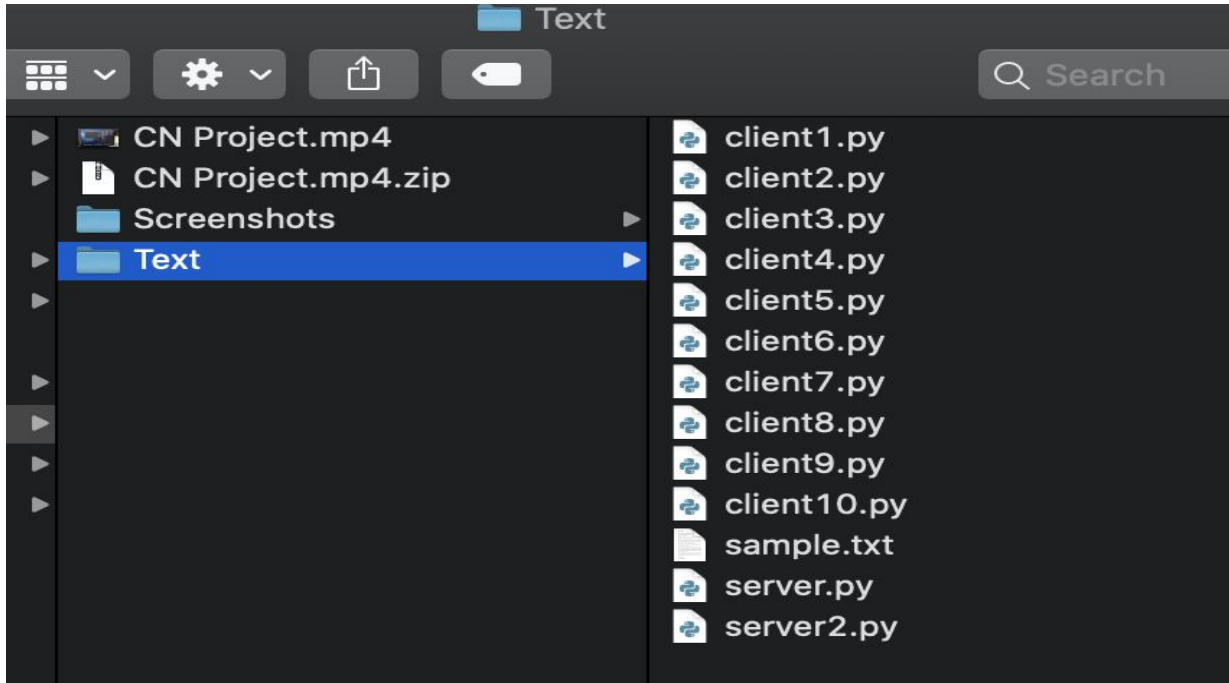


## Server terminal:



## Case 2 : Server and Clients on the same system

### **Before running the client and server programs**

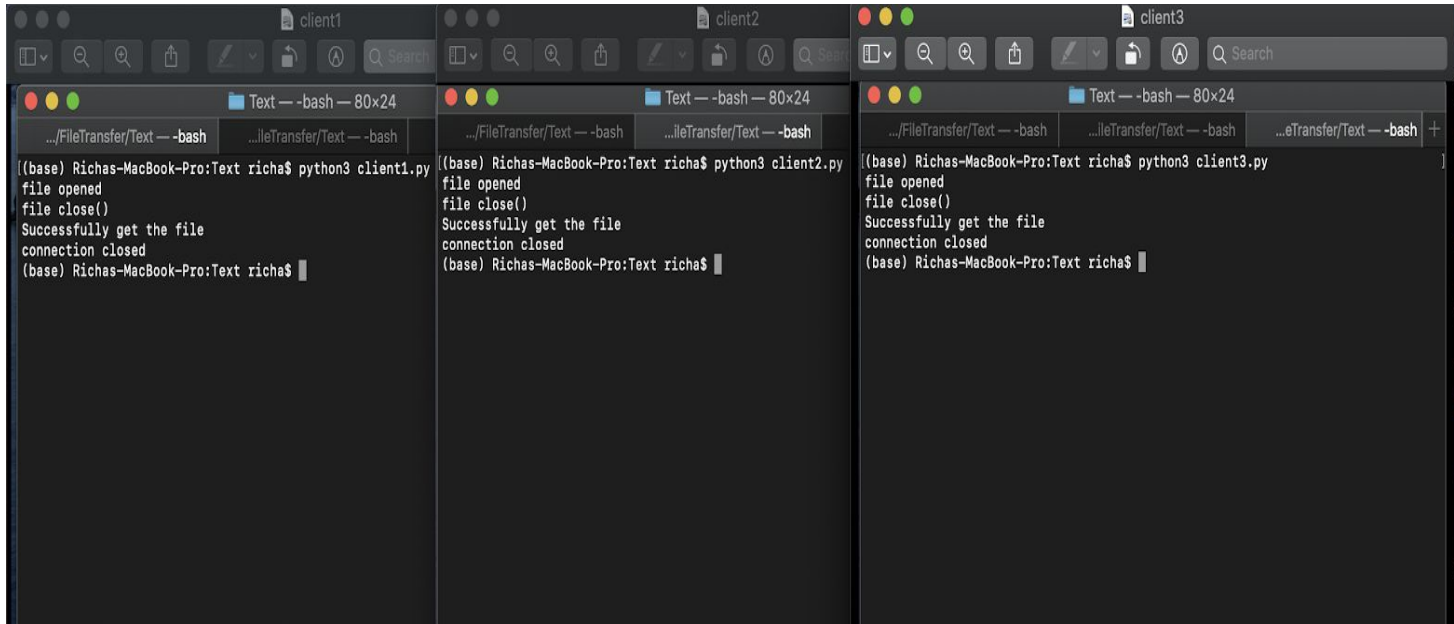


### **Server terminal**

```
Text — -bash — 80x24
Last login: Thu Nov 14 22:04:49 on ttys005

The default interactive shell is now zsh.
To update your account to use zsh, please run `chsh -s /bin/zsh`.
For more details, please visit https://support.apple.com/kb/HT208050.
(base) Richas-MacBook-Pro:Text richa$ python3 server.py
enter number of clients (max 10)3
Waiting for incoming connections...
Got connection from ('127.0.0.1', 54161)
  New thread started for 127.0.0.1:54161
Waiting for incoming connections...
Got connection from ('127.0.0.1', 54163)
  New thread started for 127.0.0.1:54163
Waiting for incoming connections...
Got connection from ('127.0.0.1', 54164)
  New thread started for 127.0.0.1:54164
(base) Richas-MacBook-Pro:Text richa$
```

## Client terminals

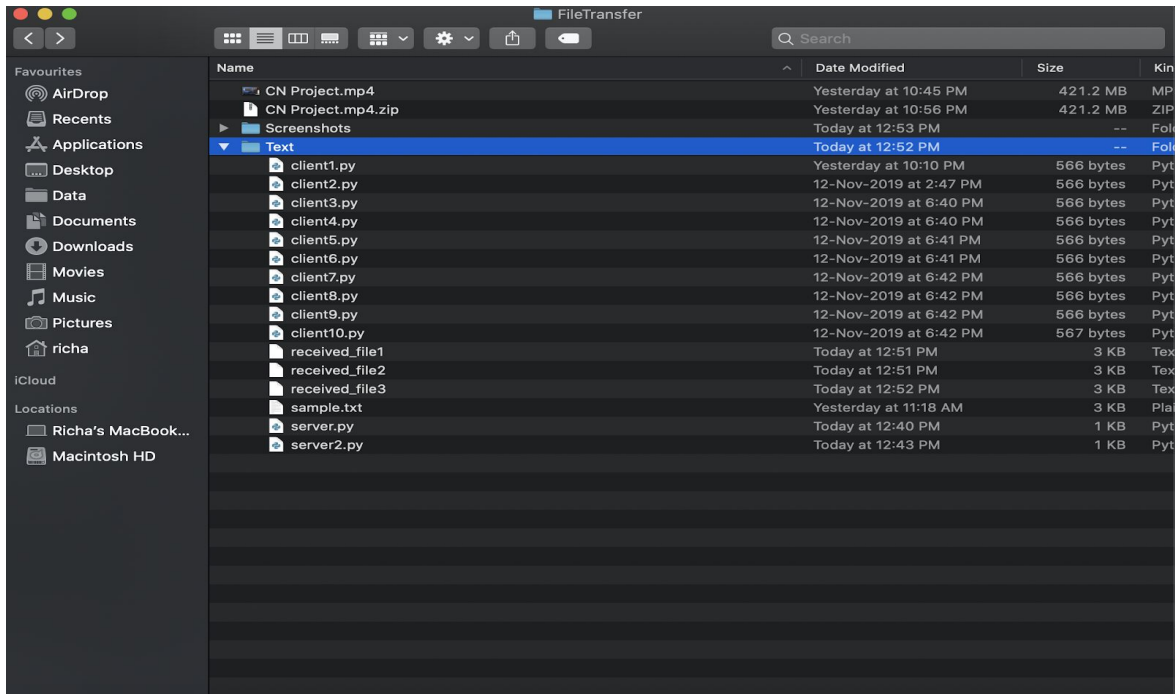


```
(base) Richas-MacBook-Pro:Text richa$ python3 client1.py
file opened
file close()
Successfully get the file
connection closed
(base) Richas-MacBook-Pro:Text richa$

(base) Richas-MacBook-Pro:Text richa$ python3 client2.py
file opened
file close()
Successfully get the file
connection closed
(base) Richas-MacBook-Pro:Text richa$

(base) Richas-MacBook-Pro:Text richa$ python3 client3.py
file opened
file close()
Successfully get the file
connection closed
(base) Richas-MacBook-Pro:Text richa$
```

## After receiving the files



Name	Date Modified	Size	Kind
CN Project.mp4	Yesterday at 10:45 PM	421.2 MB	MP
CN Project.mp4.zip	Yesterday at 10:56 PM	421.2 MB	ZIP
Screenshots	Today at 12:53 PM	--	Fold
Text	Today at 12:52 PM	--	Fold
client1.py	Yesterday at 10:10 PM	566 bytes	Pyt
client2.py	12-Nov-2019 at 2:47 PM	566 bytes	Pyt
client3.py	12-Nov-2019 at 6:40 PM	566 bytes	Pyt
client4.py	12-Nov-2019 at 6:40 PM	566 bytes	Pyt
client5.py	12-Nov-2019 at 6:41 PM	566 bytes	Pyt
client6.py	12-Nov-2019 at 6:41 PM	566 bytes	Pyt
client7.py	12-Nov-2019 at 6:42 PM	566 bytes	Pyt
client8.py	12-Nov-2019 at 6:42 PM	566 bytes	Pyt
client9.py	12-Nov-2019 at 6:42 PM	566 bytes	Pyt
client10.py	12-Nov-2019 at 6:42 PM	567 bytes	Pyt
received_file1	Today at 12:51 PM	3 KB	Tex
received_file2	Today at 12:51 PM	3 KB	Tex
received_file3	Today at 12:52 PM	3 KB	Tex
sample.txt	Yesterday at 11:18 AM	3 KB	Pla
server.py	Today at 12:40 PM	1 KB	Pyt
server2.py	Today at 12:43 PM	1 KB	Pyt



## Comparing sample.txt and the received files:

CN Report



File Edit View Insert Format Tools Add-ons Help All changes saved in Drive

sample.txt

Lorem Ipsum is simply dummy text of the printing and typesetting industry. Lorem Ipsum has been the industry's standard dummy text ever since the 1500s, when an unknown printer took a galley of type and scrambled it to make a type specimen book. It has survived not only five centuries, but also the leap into electronic typesetting, remaining essentially unchanged. It was popularised in the 1960s with the release of Letraset sheets containing Lorem Ipsum passages, and more recently with desktop publishing software like Aldus PageMaker including versions of Lorem Ipsum.

Why do we use it?

It is a long established fact that a reader will be distracted by the readable content of a page when looking at its layout. The point of using Lorem Ipsum is that it has a more-or-less normal distribution of letters, as opposed to using 'Content here, content here', making it look like readable English. Many desktop publishing packages and web page editors now use Lorem Ipsum as their default model text, and a search for 'Lorem Ipsum' will uncover many web sites still in their infancy. Various versions have evolved over the years, sometimes by accident, sometimes on purpose (injected humour and the like).

Where does it come from?

Contrary to popular belief, Lorem Ipsum is not simply random text. It has roots in a piece of classical Latin literature from 45 BC, making it over 2000 years old. Richard McClintock, a Latin professor at Hampden-Sydney College in Virginia, looked up one of the more obscure Latin words, consectetur, from a Lorem Ipsum passage, and going through the cites of the word in classical literature, discovered the undoubtable source. Lorem Ipsum comes from sections 1.10.32 and 1.10.33 of "de Finibus Bonorum et Malorum" (The Extremes of Good and Evil) by Cicero, written in 45 BC. This book is a treatise on the theory of ethics, very popular during the Renaissance. The first line of Lorem Ipsum, "Lorem ipsum dolor sit amet.", comes from a line in section 1.10.32.

The standard chunk of Lorem Ipsum used since the 1500s is reproduced below for those

Favourites

Name

AirDrop

CN Project.mp4

received\_file1

Lorem Ipsum is simply dummy text of the printing and typesetting industry. Lorem Ipsum has been the industry's standard dummy text ever since the 1500s, when an unknown printer took a galley of type and scrambled it to make a type specimen book. It has survived not only five centuries, but also the leap into electronic typesetting, remaining essentially unchanged. It was popularised in the 1960s with the release of Letraset sheets containing Lorem Ipsum passages, and more recently with desktop publishing software like Aldus PageMaker including versions of Lorem Ipsum.

Why do we use it?

It is a long established fact that a reader will be distracted by the readable content of a page when looking at its layout. The point of using Lorem Ipsum is that it has a more-or-less normal distribution of letters, as opposed to using 'Content here, content here', making it look like readable English. Many desktop publishing packages and web page editors now use Lorem Ipsum as their default model text, and a search for 'Lorem ipsum' will uncover many web sites still in their infancy. Various versions have evolved over the years, sometimes by accident, sometimes on purpose (injected humour and the like).

Where does it come from?

Contrary to popular belief, Lorem Ipsum is not simply random text. It has roots in a piece of classical Latin literature from 45 BC, making it over 2000 years old. Richard McClintock, a Latin professor at Hampden-Sydney College in Virginia, looked up one of the more obscure Latin words, consectetur, from a Lorem Ipsum passage, and going through the cites of the word in classical literature, discovered the undoubtable source. Lorem Ipsum comes from sections 1.10.32 and 1.10.33 of "de Finibus Bonorum et Malorum" (The Extremes of Good and Evil) by Cicero, written in 45 BC. This book is a treatise on the theory of ethics, very popular during the Renaissance. The first line of Lorem Ipsum, "Lorem ipsum dolor sit amet.", comes from a line in section 1.10.32.

The standard chunk of Lorem Ipsum used since the 1500s is reproduced below for those