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**Subject: - Digital Communication**

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### **LAB REPORT 7**

Aim: To write a MATLAB code to visualize channel capacity variation with bandwidth and signal power

Code:

```
% YASHKUMAR INGRODIYA - BT19ECE010
```

```
% Channel Capacity Variation
```

```
clc;
```

```
clear all;
```

```
close all;
```

```
B=1:0.01:1000;
```

```
S=2;
```

```
N0=2;
```

```
Z=B * N0;
```

```
%subplot(1,2,1);
```

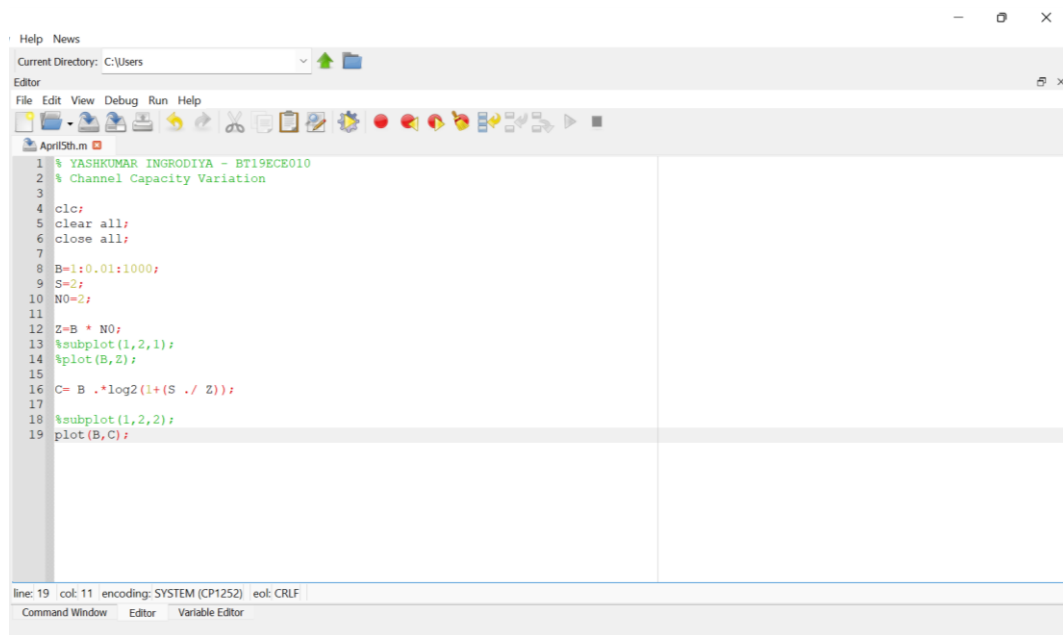
```
%plot(B,Z);
```

```
C= B .*log2(1+(S ./ Z));
```

```
%subplot(1,2,2);
```

```
plot(B,C);
```

Screenshot:



The screenshot shows the MATLAB Editor window with the following code:

```
1 % YASHKUMAR INGRODIYA - BT19ECE010
2 % Channel Capacity Variation
3
4 clc;
5 clear all;
6 close all;
7
8 B=1:0.01:1000;
9 S=2;
10 N0=2;
11
12 Z=B * N0;
13 %subplot(1,2,1);
14 %plot(B,Z);
15
16 C= B .*log2(1+(S ./ Z));
17
18 %subplot(1,2,2);
19 plot(B,C);
```

The status bar at the bottom indicates: line: 19 col: 11 encoding: SYSTEM (CP1252) eol: CRLF. The tabs at the bottom are Command Window, Editor, and Variable Editor.

Output:

