CS304: Report
Assignment – Buddy Memory Allocator
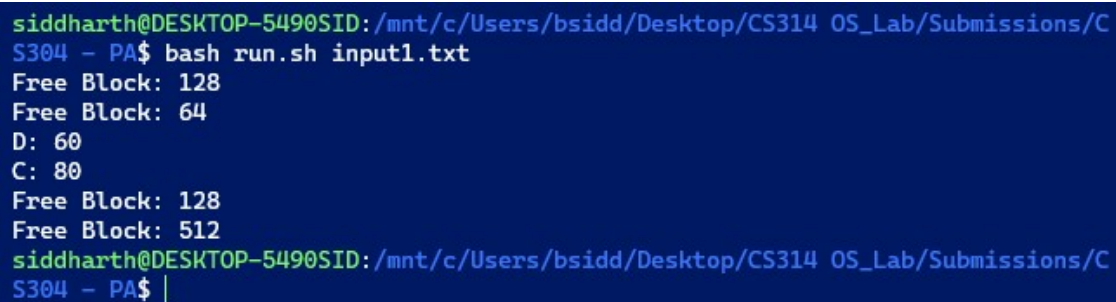
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6 April 2023

1 Working of Code

This report is just to show the working of the code given in `buddy.c` for 5 different values of U and L and 5 different input request patterns. Other details are in `README.md`.

1.1 `input1.txt` : Provided test case

```
1

10 4
A 70
B 35
C 80
A 0
D 60
B 0
```

```
siddharth@DESKTOP-5490SID:/mnt/c/Users/bsidd/Desktop/CS314 OS_Lab/Submissions/C
S304 - PA$ bash run.sh input1.txt
Free Block: 128
Free Block: 64
D: 60
C: 80
Free Block: 128
Free Block: 512
siddharth@DESKTOP-5490SID:/mnt/c/Users/bsidd/Desktop/CS314 OS_Lab/Submissions/C
S304 - PA$ |
```

Figure 1: Test case 1

1.2 `input2.txt` : Varying values of U and L

```
5

10 4
A 10
B 10
C 10
D 10
E 10
F 10

9 5
A 10
B 10
C 10
D 10
E 10
F 10

9 6
A 10
B 10
C 10
D 10
E 10
F 10

10 7
A 10
B 10
C 10
D 10
E 10
F 10

9 3
A 10
B 10
C 10
D 10
E 10
F 10
```

```
siddharth@DESKTOP-5490SID:/mnt/c/Users/bsidd/Desktop/CS314 OS_Lab/Submissions/C
S304 - PA$ bash run.sh input2.txt
A: 10
B: 10
C: 10
D: 10
E: 10
F: 10
Free Block: 32
Free Block: 128
Free Block: 256
Free Block: 512

A: 10
B: 10
C: 10
D: 10
E: 10
F: 10
Free Block: 64
Free Block: 256

A: 10
B: 10
C: 10
D: 10
E: 10
F: 10
Free Block: 128

A: 10
B: 10
C: 10
D: 10
E: 10
F: 10
Free Block: 256

A: 10
B: 10
C: 10
D: 10
E: 10
F: 10
Free Block: 32
Free Block: 128
Free Block: 256
siddharth@DESKTOP-5490SID:/mnt/c/Users/bsidd/Desktop/CS314 OS_Lab/Submissions/C
S304 - PA$ |
```

Figure 2: Test case 2

1.3 `input3.txt` : An interesting sequence

```
3

14 10
A 3600
B 1500
C 1200
D 1900
E 2700

14 10
A 3600
B 1500
C 1200
D 1900
E 2700
C 0
B 0
F 1500

14 10
A 3600
B 1500
C 1200
D 1900
E 2700
C 0
B 0
F 1500
G 1600
D 0
```

```
siddharth@DESKTOP-5490SID:/mnt/c/Users/bsidd/Desktop/CS314 OS_Lab/Submissions/C
S304 - PA$ bash run.sh input3.txt
A: 3600
B: 1500
C: 1200
D: 1900
Free Block: 2048
E: 2700

A: 3600
Free Block: 4096
D: 1900
F: 1500
E: 2700

A: 3600
G: 1600
Free Block: 2048
Free Block: 2048
F: 1500
E: 2700
```

Figure 3: Test case 3

4

1.4 `input3.txt` : Longer and More Complex; It's evolving!

```
6

14 10
A 3600
B 1500
C 1200
D 1900
E 2700
C 0
B 0
F 1500
G 1600
D 0
A 0

14 10
A 3600
B 1500
C 1200
D 1900
E 2700
C 0
B 0
F 1500
G 1600
D 0
A 0
G 0

14 10
A 3600
B 1500
C 1200
D 1900
E 2700
C 0
B 0
F 1500
G 1600
D 0
A 0
G 0
H 6800
E 0
I 850

14 10
A 3600
B 1500
C 1200
D 1900
E 2700
C 0
B 0
F 1500
```

```
G 1600
D 0
A 0
G 0
H 6800
E 0
I 850
J 610
K 1600
L 750
H 0

14 10
A 3600
B 1500
C 1200
D 1900
E 2700
C 0
B 0
F 1500
G 1600
D 0
A 0
G 0
H 6800
E 0
I 850
J 610
K 1600
L 750
H 0
M 3900
N 1700
L 0
F 0

14 10
A 3600
B 1500
C 1200
D 1900
E 2700
C 0
B 0
F 1500
G 1600
D 0
A 0
G 0
H 6800
E 0
I 850
J 610
K 1600
```

```
L 750
H 0
M 3900
N 1700
L 0
F 0
K 0
P 670
I 0
N 0
J 0
```

```
siddharth@DESKTOP-5490SID:/mnt/c/Users/bsidd/Desktop/CS314 OS_Lab/Submissions/C
S304 - PA$ bash run.sh input4.txt
Free Block: 4096
G: 1600
Free Block: 2048
Free Block: 2048
F: 1500
E: 2700

Free Block: 8192
Free Block: 2048
F: 1500
E: 2700

H: 6800
I: 850
Free Block: 1024
F: 1500
Free Block: 4096

Free Block: 8192
I: 850
J: 610
F: 1500
K: 1600
L: 750
Free Block: 1024

M: 3900
N: 1700
Free Block: 2048
I: 850
J: 610
Free Block: 2048
K: 1600
Free Block: 2048

M: 3900
Free Block: 4096
Free Block: 2048
P: 670
Free Block: 1024
Free Block: 4096
siddharth@DESKTOP-5490SID:/mnt/c/Users/bsidd/Desktop/CS314 OS_Lab/Submissions/C
S304 - PA$ |
```

Figure 4: Test case 4

1.5 `input5.txt` : Some random tiny and big things

```
4

10 2
A 1

10 2
A 1
B 511

10 2
A 1
B 511
A 0

10 2
A 1
B 1
C 1
D 1
E 1
B 0
C 0
E 0
F 1

8 4
A 32
B 30
C 20
```

```
siddharth@DESKTOP-5490SID:/mnt/c/Users/bsidd/Desktop/CS314 OS_Lab/Submissions/C
S304 - PA$ bash run.sh input5.txt
A: 1
Free Block: 4
Free Block: 8
Free Block: 16
Free Block: 32
Free Block: 64
Free Block: 128
Free Block: 256
Free Block: 512

A: 1
Free Block: 4
Free Block: 8
Free Block: 16
Free Block: 32
Free Block: 64
Free Block: 128
Free Block: 256
B: 511

Free Block: 512
B: 511

A: 1
Free Block: 4
F: 1
D: 1
Free Block: 16
Free Block: 32
Free Block: 64
Free Block: 128
Free Block: 256
Free Block: 512
siddharth@DESKTOP-5490SID:/mnt/c/Users/bsidd/Desktop/CS314 OS_Lab/Submissions/C
S304 - PA$ |
```

Figure 5: Test case 5