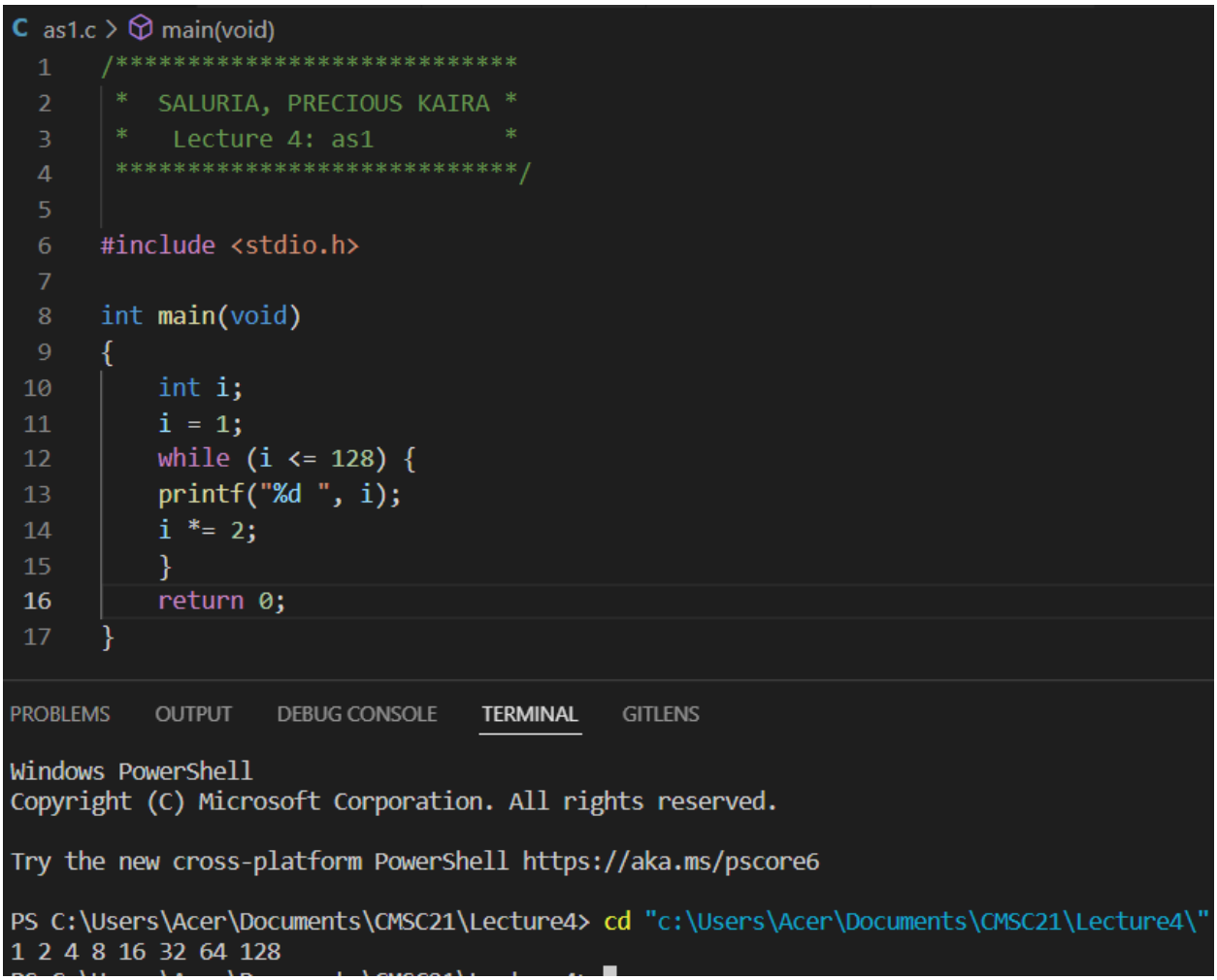
PRECIOUS KAIRA B. SALURIA

CMSC21 – 1

Loop/Repetition Statements

Lecture 4 Assignments

1. The output is: **1 2 4 8 16 32 64 128**

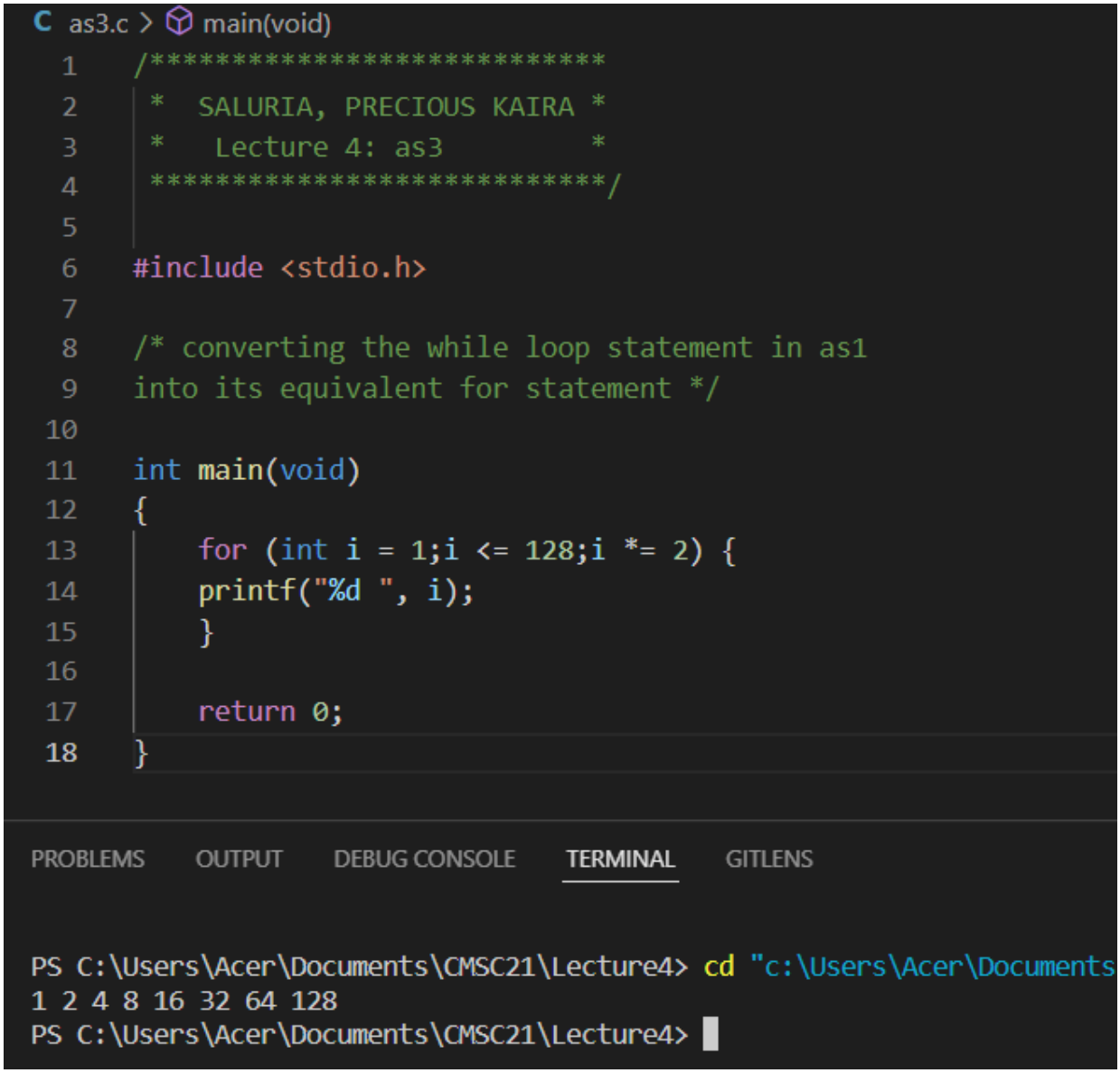


2. If the value of the variable i is < 10, the outputs are just the same. However, if i ≥ 10, the one that is not equivalent to the other two is the do-while loop. In for loop and while loop, the condition is verified first before any command is executed. And if true, all the commands inside it are executed until the condition becomes false. On the other hand, the do-while loop executes all the instructions, and only there does it check if the condition is true.

```c
/*****************************
 *  SALURIA, PRECIOUS KAIRA *
 *   Lecture 4: as2         *
 *****************************/

#include <stdio.h>

// checks the output if i > 10
int main(void)
{
    // while loop
    int i = 15;
    printf ("A: ");
    while (i < 10) {
        printf ("%d ", i);
        ++i;
    }

    // for loop
    i = 15;
    printf ("\nB: ");
    for (; i < 10;) {
        printf ("%d ", i);
        ++i;
    }

    // do-while loop
    i = 15;
    printf ("\nC: ");
    do{
        printf ("%d ", i);
        ++i;
    }  while (i < 10);

    return 0;
}
```

```
PROBLEMS  OUTPUT  DEBUG CONSOLE  TERMINAL  GITLENS

Try the new cross-platform PowerShell https://aka.ms/pscore6

PS C:\Users\Acer\Documents\CMSC21\Lecture4> cd "c:\Users\Acer\Documents\CMSC21\Lecture
A:
B:
C: 15
PS C:\Users\Acer\Documents\CMSC21\Lecture4>
```

3.


as3.c > main(void)
/*****************************
* SALURIA, PRECIOUS KAIRA *
*   Lecture 4: as3   *
*****************************/
#include <stdio.h>
/* converting the while loop statement in as1
into its equivalent for statement */
int main(void)
{
for (int i = 1;i <= 128;i *= 2) {
printf("%d ", i);
}
return 0;
}
PROBLEMS
OUTPUT
DEBUG CONSOLE
TERMINAL
GITLENS
PS C:\Users\Acer\Documents\CMSC21\Lecture4> cd "c:\Users\Acer\Documents
1 2 4 8 16 32 64 128
PS C:\Users\Acer\Documents\CMSC21\Lecture4>

4.

C as4.c > ...

```c
/*****************************
*  SALURIA, PRECIOUS KAIRA *
*   Lecture 4: as4         *
*****************************/

#include<stdio.h>

// PROGRAM THAT COMPUTES FOR THE POWER OF TWO
int main(){
    int power, counter, base = 2, value = 1;

    printf("Enter n: ");
    scanf("%d", &power);

    /* calculating the power of two by
    repetitively multiplying the base */
    for(counter = 0; counter < power; counter++){
        value *= base;
    }

    printf("2^%d = %ld", power, value);
    return 0;
}
```

PROBLEMS OUTPUT DEBUG CONSOLE TERMINAL GITLENS

```
Windows PowerShell
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Try the new cross-platform PowerShell https://aka.ms/pscore6

PS C:\Users\Acer\Documents\CMSC21\Lecture4> cd "c:\Users\Acer\Documents\CMSC21\Lectu
Enter n: 5
2^5 = 32
PS C:\Users\Acer\Documents\CMSC21\Lecture4>
```

5.

as5.c > ...

```c
/***************************
*  SALURIA, PRECIOUS KAIRA *
*   Lecture 4: as5         *
***************************/

#include <stdio.h>

// PROGRAM THAT DISPLAYS A ONE MONTH CALENDAR
int main(void)
{
    int days, start, i, k;

    // input validation for number of days
    do{
        printf("\nEnter number of days in month: ");
        scanf("%d", &days);
        if (days <=27 || days >= 32)
            printf ("Error: Invalid number of days! Please try again.\n");
    } while (days <=27 || days >= 32);

     // input validation for starting day of the week
    do{
        printf("\nEnter starting day of the week (1=Sun, 7=Sat): ");
        scanf("%d", &start);
        if (start < 0 || start > 7)
            printf ("Error: Invalid input! Please try again.\n");
    } while (start < 0 || start > 7);

    printf("\n\n   S   M   T   W   TH   F  S\n\n");

    // to print the blank days of the first week
    for (i = 1; i < start; i++) {
        printf("    ");
    }

    // prints the calendar numbers
    for (k = 1; k <= days; i++, k++) {
        printf("%4d", k);

        // checks whether i is the last day of the week
        if (i % 7 == 0)
            printf("\n");   // prints a new-line character every 7 days
    }
    printf ("\n\n");
    return 0;
}
```

Output:

```
PS C:\Users\Acer\Documents\CMSC21\Lecture4> cd "c:\Users\Acer\Documents\CMSC2

Enter number of days in month: 35
Error: Invalid number of days! Please try again.

Enter number of days in month: 31

Enter starting day of the week (1=Sun, 7=Sat): 9
Error: Invalid input! Please try again.

Enter starting day of the week (1=Sun, 7=Sat): 2


   S   M   T   W   TH   F  S

       1   2   3   4   5   6
   7   8   9  10  11  12  13
  14  15  16  17  18  19  20
  21  22  23  24  25  26  27
  28  29  30  31

PS C:\Users\Acer\Documents\CMSC21\Lecture4>
```

Github Link: https://github.com/kryshyr/CMSC21