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ROLL NO.: 2022ITB012

GROUP: HX

1. WAP to input FIVE numbers and find the largest one using the if-else ladder only.

Code:

```c
// Write a program to find out maximum of 5 numbers
#include <stdio.h>

int main()
{
    int a, b, c, d, e;

    printf("Enter 5 numbers : ");
    scanf("%d %d %d %d %d", &a, &b, &c, &d, &e);

    if (a > b && a > c && a > d && a > e)
        printf("%d is maximum\n", a);

    else if (b > c && b > d && b > e)
        printf("%d is maximum\n", b);

    else if (c > d && c > e)
        printf("%d is maximum\n", c);

    else if (d > e)
        printf("%d is maximum\n", d);

    else
        printf("%d is maximum\n", e);

    return 0;
}
```

Outputs: (My computer in Lab had been corrupted so I did the outputs in my own Windows system)

```
e:\2022ITB012>gcc 12_a1_1.c

e:\2022ITB012>a.exe
Enter 5 numbers : 123 4 3 4 143
143 is maximum

e:\2022ITB012>a.exe
Enter 5 numbers : -1 -4 0 -10 -14
0 is maximum

e:\2022ITB012>a.exe
Enter 5 numbers : 5 6 7 8 9
9 is maximum
```

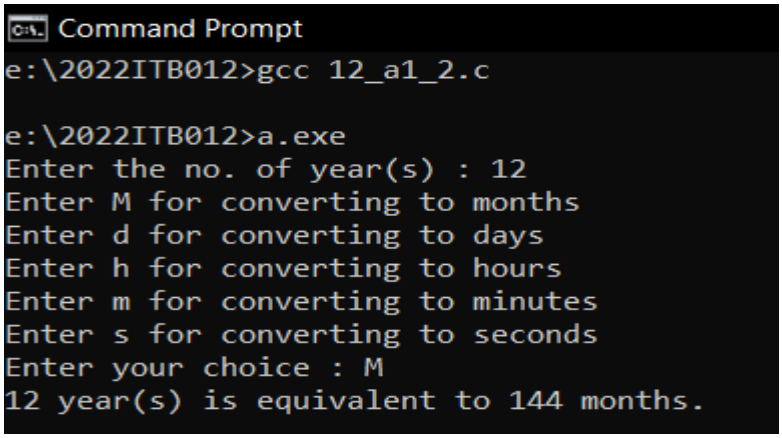
2. WAP to convert the number of years (user input) into months/days/hours/minutes/seconds using a switch-case statement.

Code:

```c
#include <stdio.h>

int main()
{
    int yrs;
    char ch;
    printf("Enter the no. of year(s) : ");
    scanf("%d", &yrs);
    printf("Enter M for converting to months\n");
    printf("Enter d for converting to days\n");
    printf("Enter h for converting to hours\n");
    printf("Enter m for converting to minutes\n");
    printf("Enter s for converting to seconds\n");
    printf("Enter your choice : ");
    ch = getchar();
    while (ch == ' ' || ch == '\n')
        ch = getchar();
    switch (ch)
    {
    case 'M':
```

```
        printf("%d year(s) is equivalent to %d months.\n",
yrs, 12 * yrs);
        break;
    case 'd': // Assuming non-leap years
        printf("%d year(s) is equivalent to %d days.\n",
yrs, 365 * yrs);
        break;
    case 'h':
        printf("%d year(s) is equivalent to %d hours.\n",
yrs, 24 * 365 * yrs);
        break;
    case 'm':
        printf("%d year(s) is equivalent to %ld minutes.\n",
yrs, 60 * 24 * 365 * yrs);
        break;
    case 's':
        printf("%d year(s) is equivalent to %ld seconds.\n",
yrs, 60 * 60 * 24 * 365 * yrs);
        break;
    default:
        printf("Wrong choice.Exiting...");
    }
    return 0;
}
```

Outputs: (My computer in Lab had been corrupted so I did the outputs in my own Windows system)



```
e:\2022ITB012>a.exe
Enter the no. of year(s) : 12
Enter M for converting to months
Enter d for converting to days
Enter h for converting to hours
Enter m for converting to minutes
Enter s for converting to seconds
Enter your choice : d
12 year(s) is equivalent to 4380 days.

e:\2022ITB012>a.exe
Enter the no. of year(s) : 12
Enter M for converting to months
Enter d for converting to days
Enter h for converting to hours
Enter m for converting to minutes
Enter s for converting to seconds
Enter your choice : h
12 year(s) is equivalent to 105120 hours.

e:\2022ITB012>a.exe
Enter the no. of year(s) : 12
Enter M for converting to months
Enter d for converting to days
Enter h for converting to hours
Enter m for converting to minutes
Enter s for converting to seconds
Enter your choice : m
12 year(s) is equivalent to 6307200 minutes.

e:\2022ITB012>a.exe
Enter the no. of year(s) : 12
Enter M for converting to months
Enter d for converting to days
Enter h for converting to hours
Enter m for converting to minutes
Enter s for converting to seconds
Enter your choice : s
12 year(s) is equivalent to 378432000 seconds.
```

3. WAP to display any number of stars on the screen. Display a menu with the following options.

1 - Fullscreen

2 - Half screen

3 - Top 3 lines

4 - Bottom 3 lines

5 - Right angled triangle (RT angle at right bottom)

6 - Isosceles triangle (base at the bottom)

7 - Circle (as shown in the lab)

8 - Diamond blank (as shown in the lab)

Code:

```
#include <stdio.h>
void fullscreen();
void halfscreen();
void top_3_lines();
void bottom_3_lines();
void right_triangle();
void isosceles_triangle();
void circle();
void diamond_blank();
int rows = 24;
int cols = 80;
int main()
{
    int ch;
    printf("MENU :\n");
    printf("_____\n");
    printf("1. Full screen\n");
    printf("2. Half screen\n");
    printf("3. Top 3 lines\n");
    printf("4. Bottom 3 lines\n");
    printf("5. Right angled triangle\n");
    printf("6. Isosceles triangle\n");
    printf("7. Circle\n");
```

```c
    printf("8. Diamond blank\n");
    printf("_____");
    printf("\nEnter your choice : ");
    scanf("%d", &ch);
    switch (ch)
    {
    case 1:
        fullscreen();
        break;
    case 2:
        halfscreen();
        break;
    case 3:
        top_3_lines();
        break;
    case 4:
        bottom_3_lines();
        break;
    case 5:
        right_triangle();
        break;
    case 6:
        isosceles_triangle();
        break;
    case 7:
        circle();
        break;
    case 8:
        diamond_blank();
        break;
    default:
        printf("Wrong choice.Exiting...");
    }
    return 0;
}
void fullscreen()
{
    int i, j;
```

```
    for (i = 0; i < rows; i++)
    {
        for (j = 0; j < cols; j++)
        {
            printf("*");
        }
        printf("\n");
    }
}

void halfscreen()
{
    int i, j;
    for (i = 0; i < rows; i++)
    {
        for (j = 0; j < cols / 2; j++)
        {
            printf("*");
        }
        printf("\n");
    }
}
void top_3_lines()
{
    int i, j;
    for (i = 0; i < rows - 1; i++)
    {
        if (i >= 3)
        {
            printf("\n");
            continue;
        }
        for (j = 0; j < cols; j++)
            printf("*");
        printf("\n");
    }
}
```

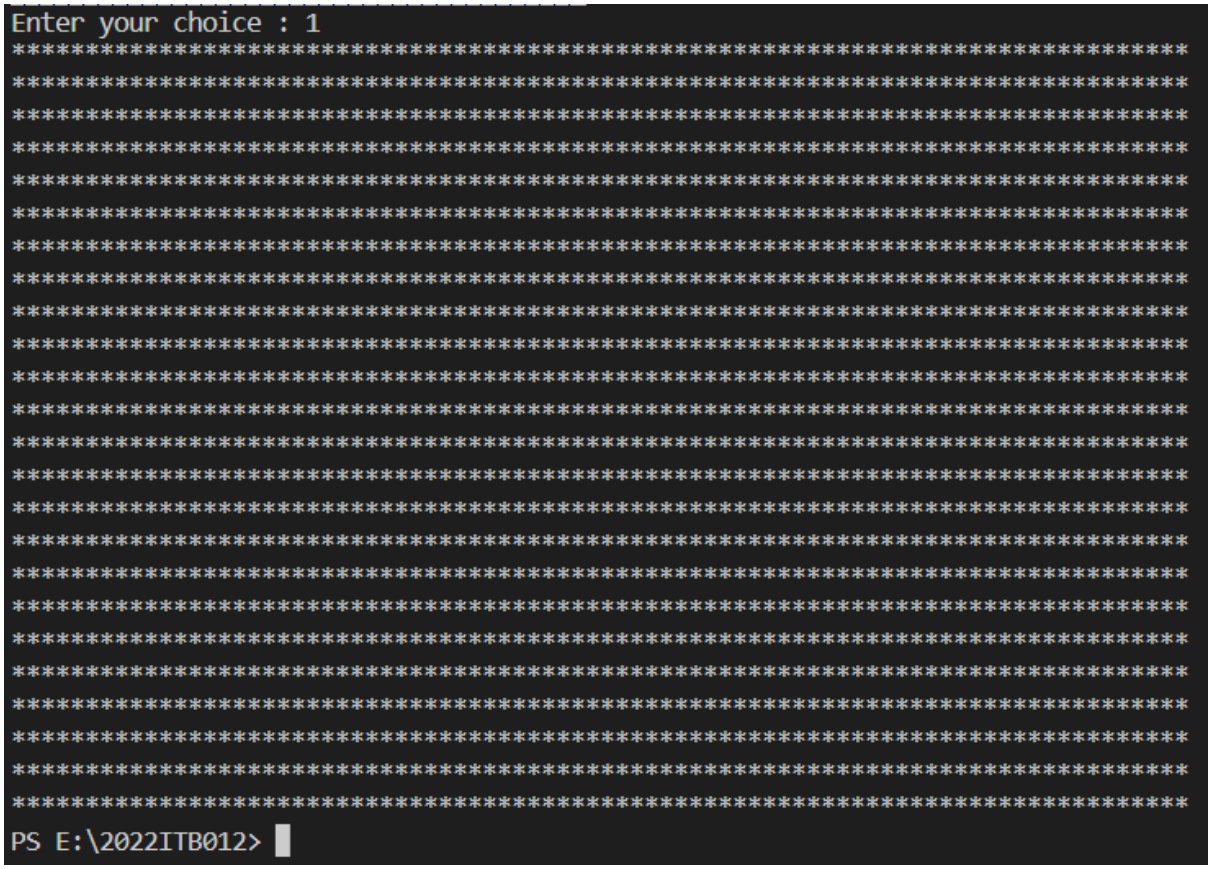
```c
void bottom_3_lines()
{
    int i, j;
    for (i = 0; i < rows; i++)
    {
        if (i < rows - 3)
        {
            printf("\n");
            continue;
        }
        for (j = 0; j < cols; j++)
            printf("*");
        printf("\n");
    }
}
void right_triangle()
{
    int i, j;
    for (i = 1; i < rows; i++)
    {
        for (j = 1; j <= 8; j++)
            printf(" ");
        for (j = 1; j <= rows; j++)
        {
            if (j <= rows - i)
                printf("   ");
            else
                printf("***");
        }
        printf("\n");
    }
}

void isosceles_triangle()
{
    int k = 1, i, j;
    for (i = 1; i < rows; i++)
    {
```

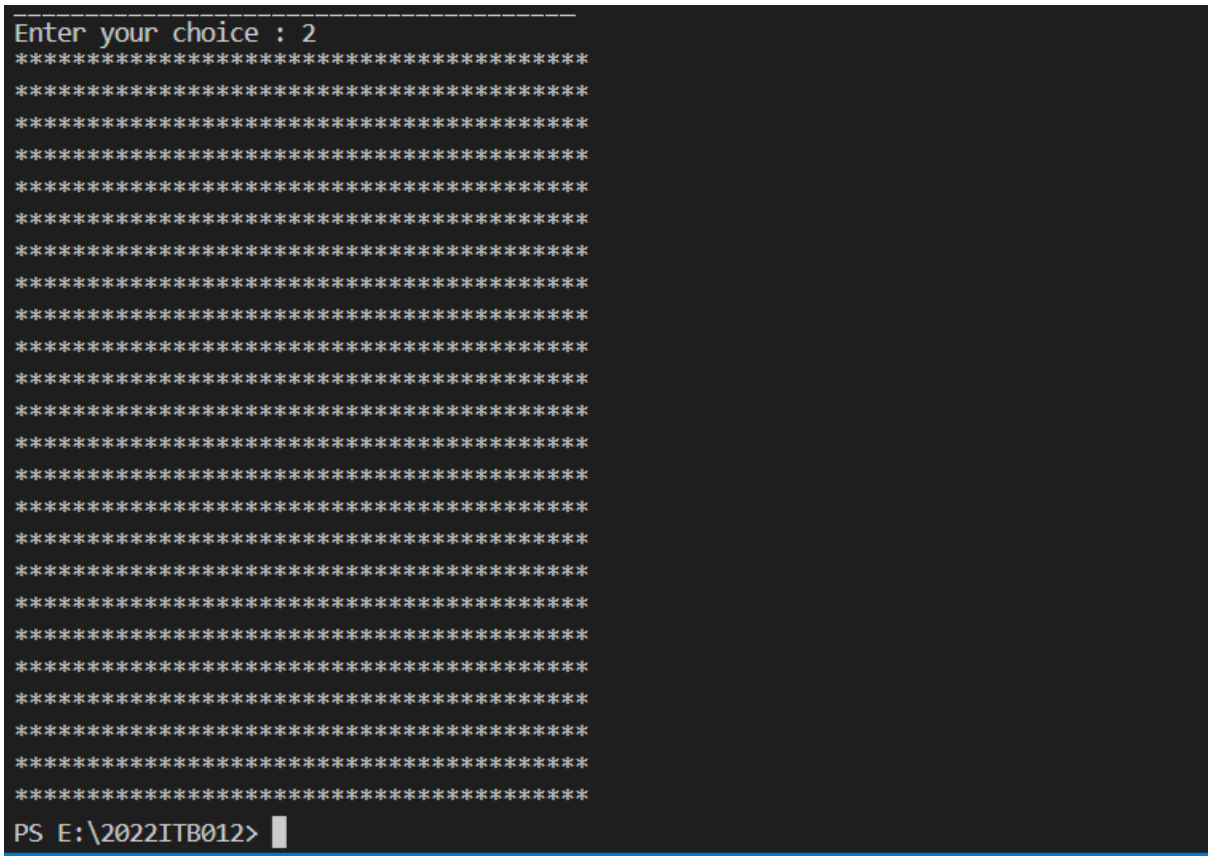
```
        for (j = 1; j <= 16; j++)
            printf(" ");
        for (j = 1; j <= rows - i; j++)
            printf(" ");
        for (j = 1; j <= k; j++)
            printf("*");
        printf("\n");
        k += 2;
    }
}

void circle()
{
    int i, j;
    int rad = rows / 2 - 1;
    for (i = -rad; i <= rad; i++)
    {
        for (j = 1; j <= 15; j++)
            printf(" ");
        for (j = rad; j >= -rad; j--)
        {
   //For Hollow circle
   // if(i*i + j*j <= rad*rad+16 && i*i + j*j >= rad*rad-16)
           //For Solid circle
           if (i * i + j * j <= rad * rad)
                printf("**");
            else
                printf("  ");
        }
        printf("\n");
    }
}

void diamond_blank()
{
    int k = 1, i, j;
    for (i = 1; i <= rows / 2 - 1; i++)
    {
```

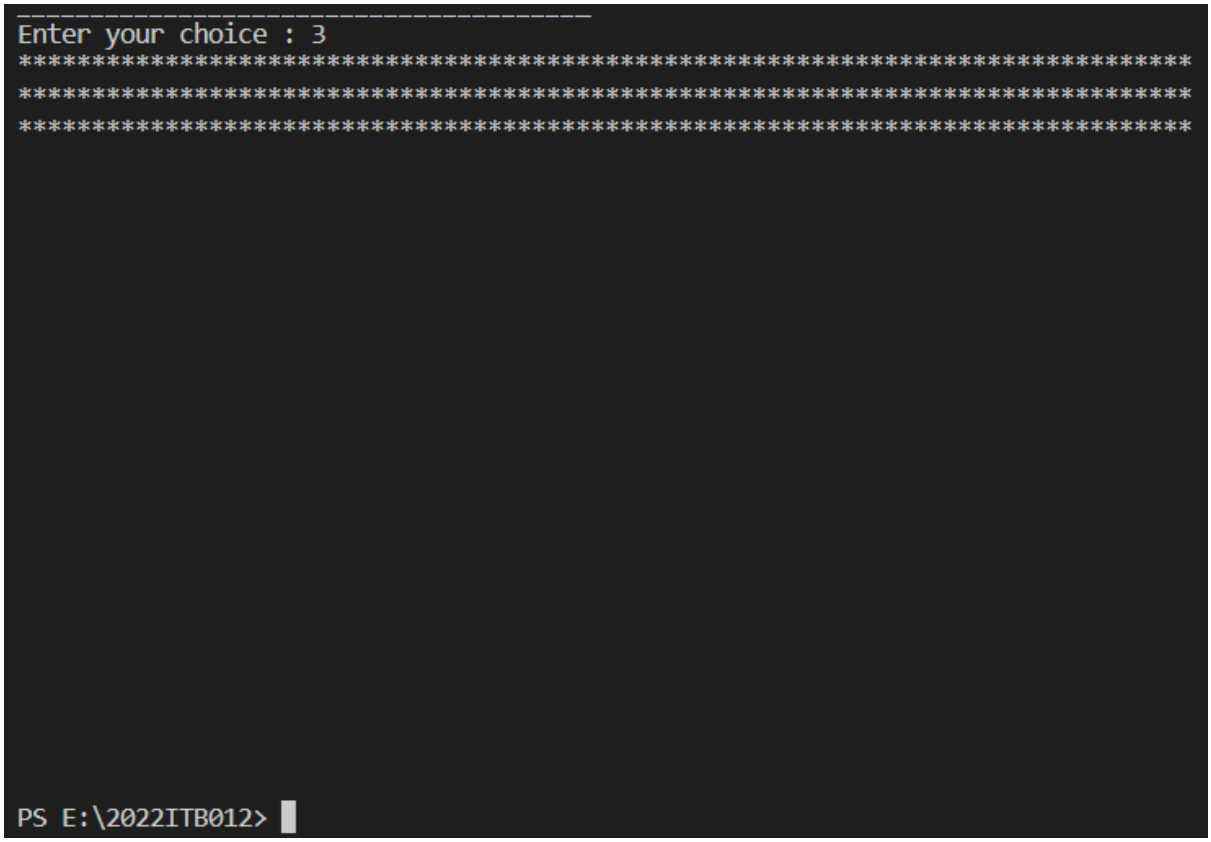
```
        for (j = 1; j <= rows - i + 16; j++)
            printf("*");
        for (j = 1; j <= k; j++)
            printf(" ");
        for (j = 1; j <= rows - i + 17; j++)
            printf("*");
        printf("\n");
        k += 2;
    }
    k = 1;
    for (i = rows / 2; i >= 1; i--)
    {
        for (j = 1; j <= rows - i + 16; j++)
            printf("*");
        for (j = 1; j <= rows - k; j++)
            printf(" ");
        for (j = 1; j <= rows - i + 17; j++)
            printf("*");
        printf("\n");
        k += 2;
    }
}
```

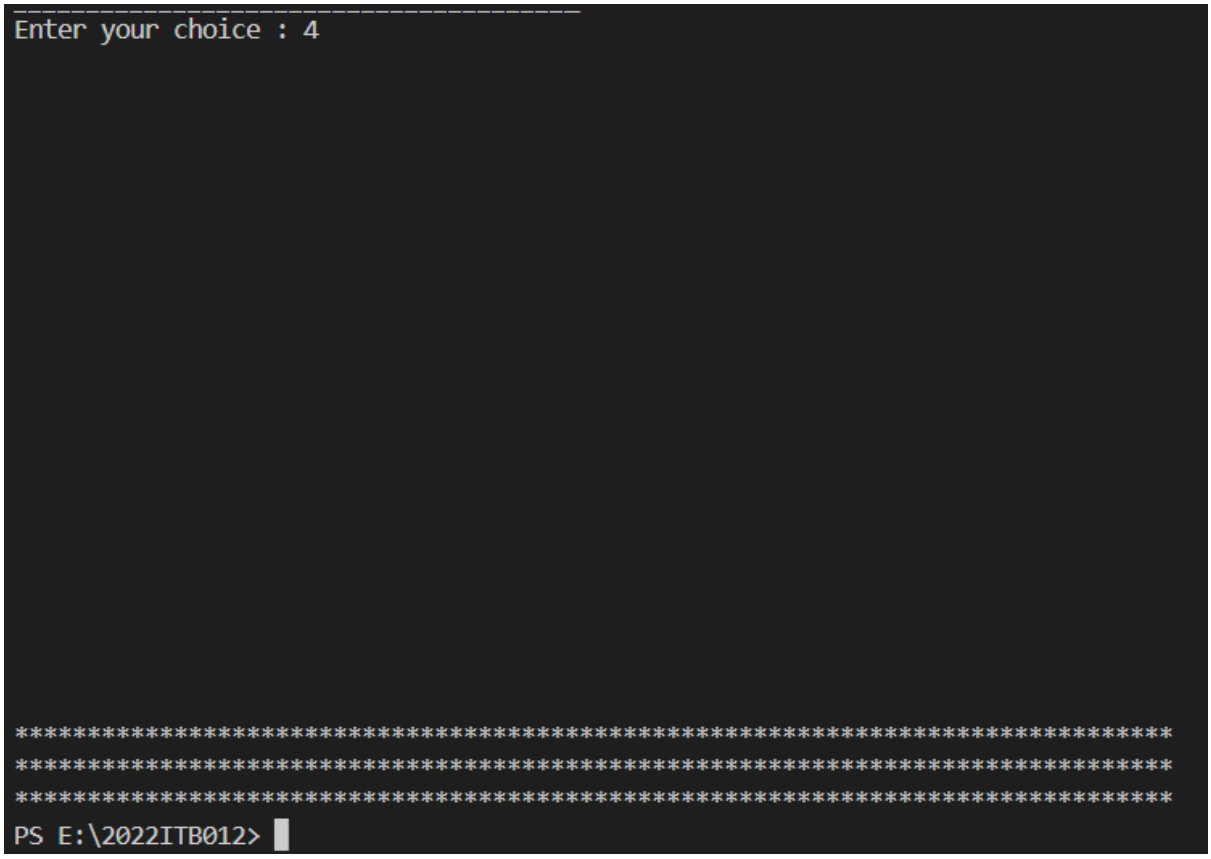
Outputs: **(My computer in Lab had been corrupted so I did the outputs in my own Windows system)**

```
PS E:\2022ITB012> gcc 12_a1_3.c
PS E:\2022ITB012> .\a.exe
MENU :

_____________________________________
1. Full screen
2. Half screen
3. Top 3 lines
4. Bottom 3 lines
5. Right angled triangle
6. Isosceles triangle
7. Circle
8. Diamond blank

_____________________________________
```


Enter your choice : 1
PS E:\2022ITB012>


Enter your choice : 2
PS E:\2022ITB012>


Enter your choice : 3
PS E:\2022ITB012>


Enter your choice : 4
PS E:\2022ITB012>

```
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Enter your choice : 5
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PS E:\2022ITB012>
```

```
_____________________________________
Enter your choice : 6
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PS E:\2022ITB012>
```
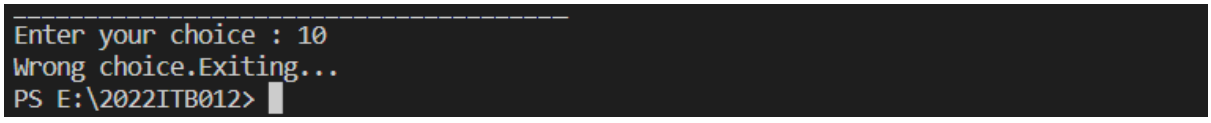


Enter your choice : 7
PS E:\2022ITB012>


Enter your choice : 8
PS E:\2022ITB012>


Enter your choice : 10
Wrong choice.Exiting...
PS E:\2022ITB012>