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Given a decimal number as input, we need to write a program to convert the given decimal number into the equivalent hexadecimal number. i.e convert the number with base value 10 to base value 16.

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Given a decimal number as input, we need to write a program to convert the given decimal number into the equivalent hexadecimal number. i.e convert the number with base value 10 to base value 16.
The base value of a number system determines the number of digits used to represent a numeric value.
For example, the binary number system uses two digits 0 and 1, octal number system uses 8 digits from 0-7 and decimal number system uses 10 digits 0-9 to represent any numeric value.

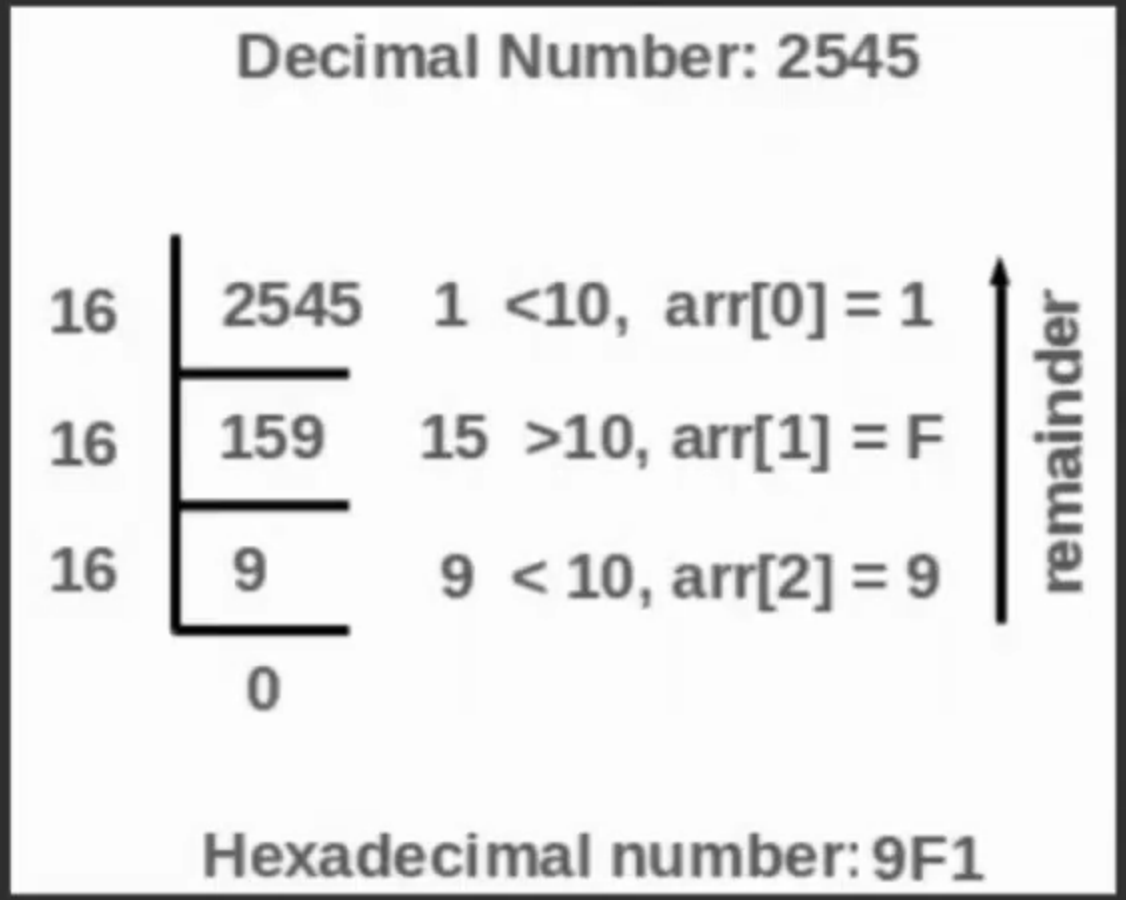
Hexadecimal Number

In hexadecimal number uses 16 symbols {0, 1, 2, 3, 4, 5, 6, 7, 8, 9, A, B, C, D, E, F} to represent all numbers.

Algorithm

1. If the remainder when the number is divided by 16 is less than 10, insert (48 + temp) in a character array otherwise if it is greater than or equals to 10, insert (55 + temp) in the character array.
2. Divide the number by 16 now
3. Repeat the above two steps until the number is not equal to 0.
4. Print the array in reverse order now.

Algorithm



1. If the remainder when the number is divided by 16 is less than 10, insert (48 + temp) in a character array otherwise if it is greater than or equals to 10, insert (55 + temp) in the character array.
2. Divide the number by 16 now
3. Repeat the above two steps until the number is not equal to 0.
4. Print the array in reverse order now.

Code

```
// function to convert decimal to hexadecimal
void decToHexa(int n)
{
    // char array to store hexadecimal number
    char hexaDeciNum[100];

    // counter for hexadecimal number array
    int i = 0;
    while(n!=0)
    {
        // temporary variable to store remainder
        int temp  = 0;

        // storing remainder in temp variable.
        temp = n % 16;

        // check if temp < 10
        if(temp < 10)
        {
            hexaDeciNum[i] = temp + 48;
            i++;
        }
        else
        {
            hexaDeciNum[i] = temp + 55;
            i++;
        }

        n = n/16;
    }

    // printing hexadecimal number array in reverse
    for(int j=i-1; j>=0; j--)
        cout << hexaDeciNum[j];
}
```

Code

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        }
        else
        {
            hexaDeciNum[i] = temp + 55;
            i++;
        }

        n = n/16;
    }

    // printing hexadecimal number array in reverse
    for(int j=i-1; j>=0; j--)
        cout << hexaDeciNum[j];
}
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Dry Run

n = 2545 i = 0 hexaDeciNum[] = {}

Code

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        {
            hexaDeciNum[i] = temp + 55;
            i++;
        }

        n = n/16;
    }

    // printing hexadecimal number array in reverse
    for(int j=i-1; j>=0; j--)
        cout << hexaDeciNum[j];
}
```

Dry Run

n = 2545 i = 0 hexaDeciNum[] = {}

temp = 2545 % 16 = 1
hexDeciNum[0] = 1 + 48 = ‘1’ i = 1
n = 2545 / 16 = 159 hexDeciNum[] = {1}

Code

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// function to convert decimal to hexadecimal
void decToHexa(int n)
{
    // char array to store hexadecimal number
    char hexaDeciNum[100];

    // counter for hexadecimal number array
    int i = 0;
    while(n!=0)
    {
        // temporary variable to store remainder
        int temp  = 0;

        // storing remainder in temp variable.
        temp = n % 16;

        // check if temp < 10
        if(temp < 10)
        {
            hexaDeciNum[i] = temp + 48;
            i++;
        }
        else
        {
            hexaDeciNum[i] = temp + 55;
            i++;
        }

        n = n/16;
    }

    // printing hexadecimal number array in reverse
    for(int j=i-1; j>=0; j--)
        cout << hexaDeciNum[j];
}
```

Dry Run

n = 2545 i = 0 hexaDeciNum[] = {}

temp = 1
hexDeciNum[0] = ‘1’ hexDeciNum[] = {1}
n = 159 i = 1
temp = 159 % 16 = 15
hexDeciNum[1] = 15 + 55 = ‘F’ i = 2
n = 159 / 16 = 9 hexDeciNum[] = {1, F}

Code

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// function to convert decimal to hexadecimal
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{
    // char array to store hexadecimal number
    char hexaDeciNum[100];

    // counter for hexadecimal number array
    int i = 0;
    while(n!=0)
    {
        // temporary variable to store remainder
        int temp  = 0;

        // storing remainder in temp variable.
        temp = n % 16;

        // check if temp < 10
        if(temp < 10)
        {
            hexaDeciNum[i] = temp + 48;
            i++;
        }
        else
        {
            hexaDeciNum[i] = temp + 55;
            i++;
        }

        n = n/16;
    }

    // printing hexadecimal number array in reverse
    for(int j=i-1; j>=0; j--)
        cout << hexaDeciNum[j];
}
```

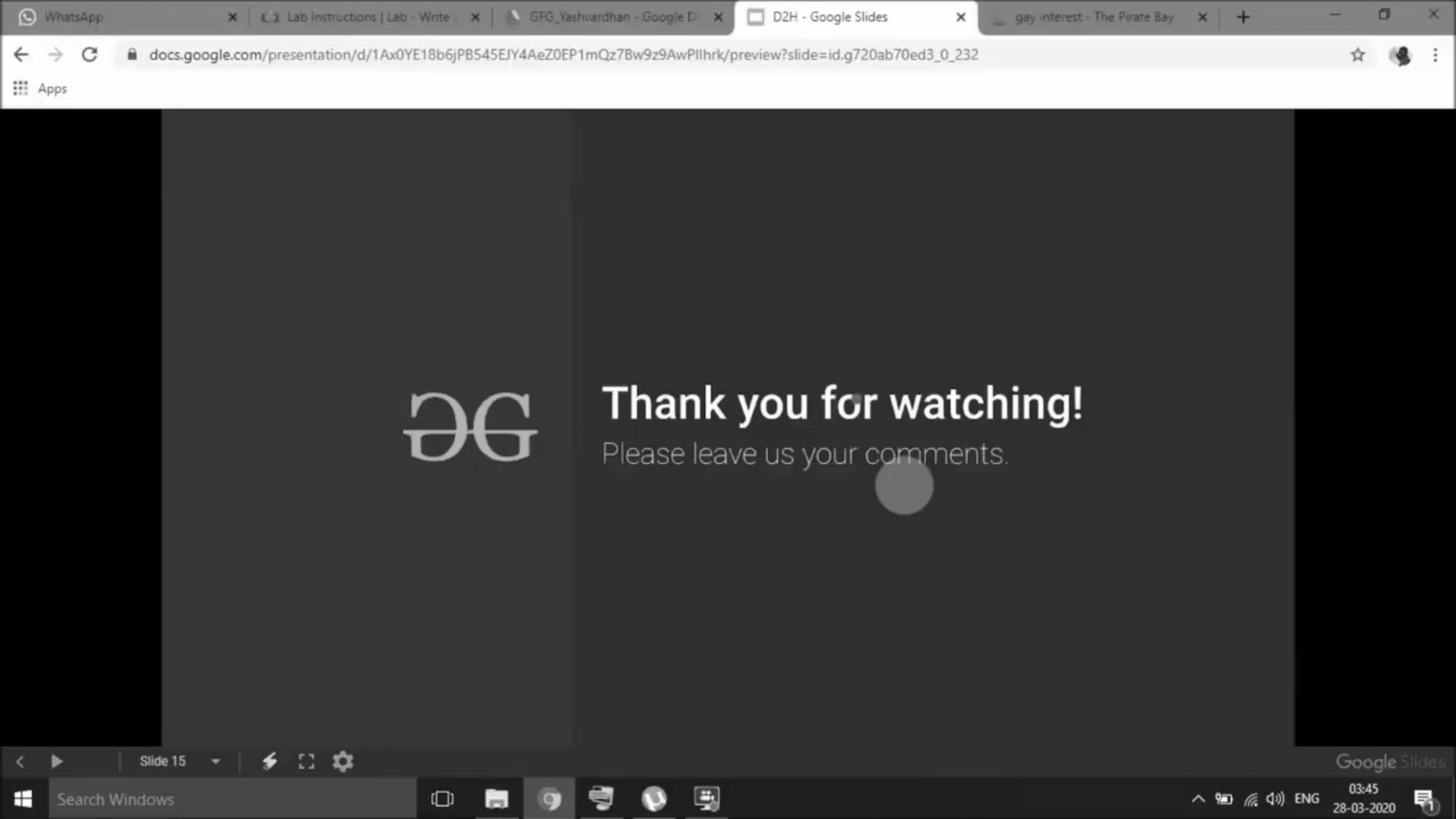
Dry Run

n = 2545 i = 0 hexaDeciNum[] = {}

temp = 1
hexDeciNum[0] = ‘1’ hexDeciNum[] = {1}
n = 159 i = 1
temp = 15
hexDeciNum[1] = ‘F’ hexDeciNum[] = {1, F}
n = 9 i = 2
temp = 9 % 16 = 9
hexDeciNum[2] = 9 + 48 = ‘9’
n = 9 / 16 = 0 hexDeciNum[] = {1, F, 9}

Thank you for watching!

Please leave us your comments.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