

# Logic Building Session

## Day 5: May 2021

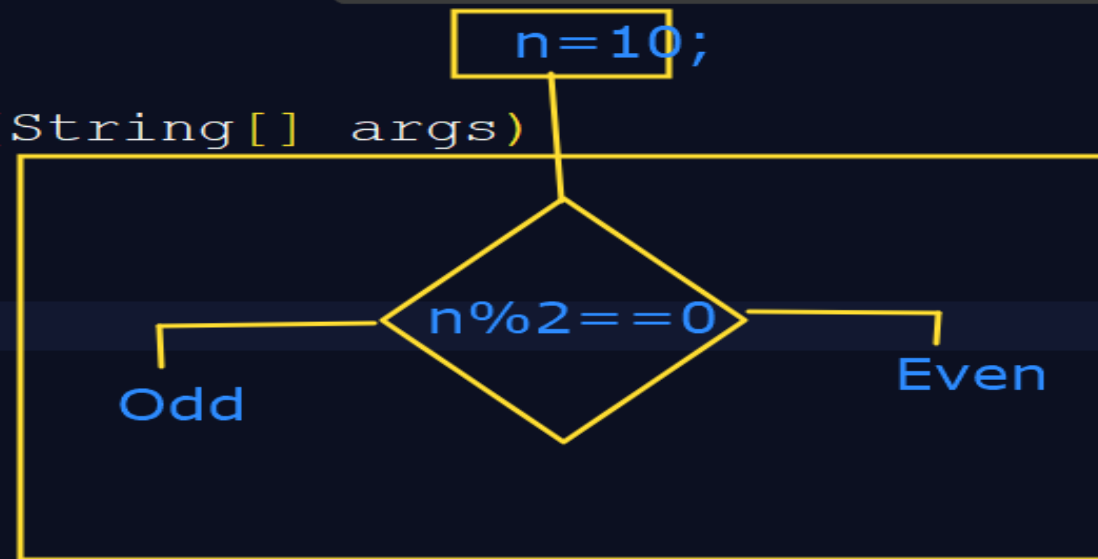
Kiran Waghmare





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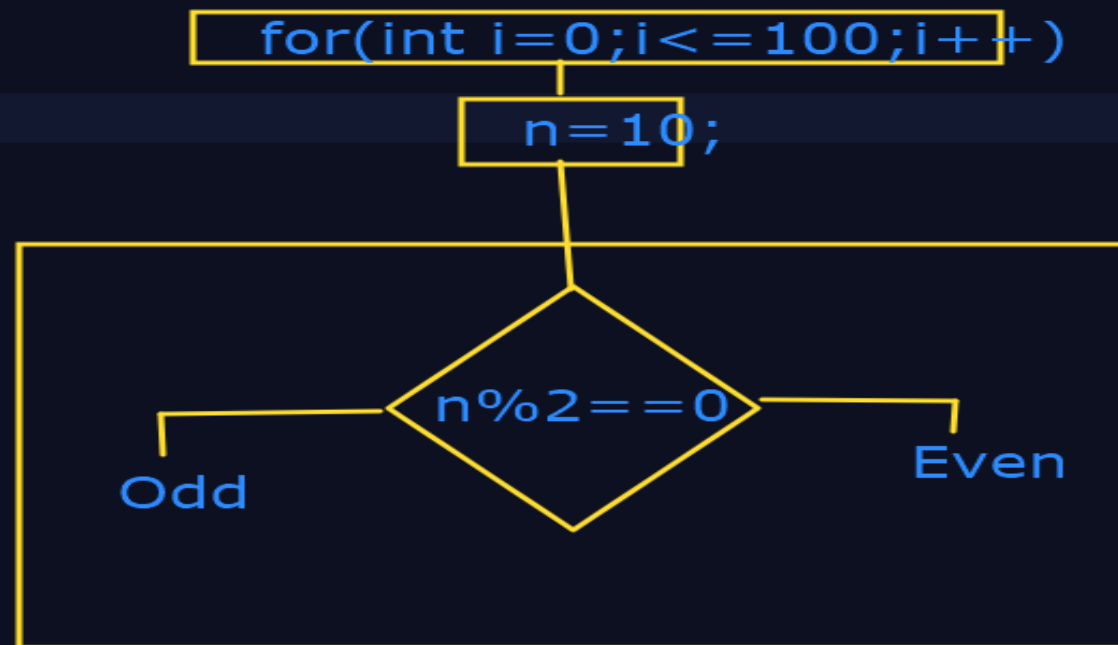
```
1 import java.util.Scanner;
2
3 public class P1
4 {
5     public static void main(String[] args)
6     {
7         int n=10;
8         if(n%2 == 0)
9
10
11     }
12 }
13
14
15 //n
16 /*
17 Q=n/2
18 R=n%2
19 R==0=> Even
20 Method1: If-else
21 Method2: Ternary
22 Method3: n=n+2
23 Method4: Switch case
24
```



```

13     }
14 }
15
16
17 //n
18 /*
19 Q=n/2
20 R=n%2
21 R==0=> Even
22 Method1: If-else
23 Method2: Ternary
24 Method3: n=n+2
25 Method4: Switch case
26
27 -----
28 Series: 1 to 100
29 Method5: Method
30 -----
31 Series: 3,6,11,45,56,78
32 Method6: Arrays
33 */

```



```

1 import java.util.Scanner;
2
3 public class P2
4 {
5     public static void main(String[] args)
6     {
7         char ch='i';
8         if(ch=='a' || ch=='e' || ch=='i' || ch=='o' || ch=='u')
9             System.out.println(ch+"is vowel");
10        else
11            System.out.println(ch+"is consonant");
12
13    }
14 }
15
16 //Logic flow:
17 alph= character
18 vowel: a,e,i,o,u
19 A,E,I,O,U

```

```

graph TD
    A["if(ch=='a' || ch=='e' || ch=='i' || ch=='o' || ch=='u')"] --> B{ }
    B --> C[Vowel]
    B --> D[consonant]
    C --> E["c=0"]
    D --> F["c=c+1;"]

```

```
1 import java.util.Scanner;
```

```
2
3 public class P2
```

```
4 {
5     public static void main(String[] args)
```

```
6     {
7         char ch='i';
8         if(ch=='a' || ch=='e' || ch=='i' || ch=='o' || ch=='u')
```

```
9             System.out.println(ch+"is vowel");
```

```
10        else
11            System.out.println(ch+"is consonant");
```

```
12
13    }
```

```
14 }
```

```
15
16 //Logic flow:
```

```
17 alph= character
```

```
18 vowel: a,e,i,o,u
```

```
19 A,E,I,O,U
```

Vowel

consonant

c=0

c=c+1;

```
1 import java.util.Scanner;
2
3 public class P2
4 {
5     public static void main(String[] args)
6     {
7         char ch='i';
8         if(ch=='a' || ch=='e' || ch=='i' || ch=='o' || ch=='u')
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11            System.out.println(ch+"is consonant");
12
13    }
14 }
```

```
15
16 //Logic flow:
17 alph= character
18 vowel: a,e,i,o,u
19 A,E,I,O,U
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```

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10        else
11            System.out.println(ch+"is consonant");
12
13    }
14 }

```

```

15
16 //Logic flow:
17 alph= character
18 vowel: a,e,i,o,u
19 A,E,I,O,U

```



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May21 LB Notes.txtP4.java

```
1 import java.util.Scanner;
2
3 public class P4
4 {
5     public static void main(String[] args)
6     {
7         int n=3; //input
8         if (n==0 || n==1)
9             System.out.println(n+"is not prime no");
10        else
11        {
12            for(int i=2; i<=n/2; i++)
13            {
14                if (n%i==0)
15                {
16                    System.out.println(n+"is not prime no");
17                    flag=1;
18                    break;
19                }
20            }
21            if (flag==0)
22                System.out.println(n+"is prime no");
23        }
```

Diagram illustrating the primality test for n=7. The number 7 is shown in a box, with lines connecting it to the numbers 0 through 6. The numbers 0, 1, 2, 3, 4, and 5 are marked with blue 'X' marks, indicating they are not factors of 7. The numbers 6 and 7 are also boxed. The word 'Prime' is written in red below the diagram.

Java source file

length : 491 lines : 37

Ln : 10 Col : 50 Pos : 196

Windows (CR LF) UTF-8

INS



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May21 LB Notes.txtP4.java

```
1 import java.util.Scanner;
2
3 public class P4
4 {
5     public static void main(String[] args)
6     {
7         int n=3; //input
8         if (n==0 || n==1)
9             System.out.println(n+"is not prime no");
10        else
11        {
12            for(int i=2; i<=n/2; i++)
13            {
14                if (n%i==0)
15                {
16                    System.out.println(n+"is not prime no");
17                    flag=1;
18                    break;
19                }
20            }
21            if (flag==0)
22                System.out.println(n+"is prime no");
23        }
```

Diagram illustrating the primality test logic for n=7. A box containing '7' has arrows pointing to boxes containing '0', '1', '2', '3', '4', '5', '6', and '7'. Below '0' and '1' are 'X' marks. Below '2' and '3' are 'X' marks. Below '4' is an 'X' mark. Below '5', '6', and '7' are 'Prime' text. The boxes for '5', '6', and '7' are highlighted with yellow borders.

ava source filelength : 491 lines : 37Ln : 10 Col : 50 Pos : 196Windows (CR LF)UTF-8INS

May21 LB Notes.txt

P4.java

```
4  = {
5      public static void main(String[] args)
6  = {
7          int n=3;//input
8          int flag=0;
9
10         if(n==0||n==1)
11             System.out.println(n+"is not prime no");
12         else
13         = {
14             = for(int i=2;i<=n/2;i++)
15                 = {
16                     = if(n%i==0)
17                         = {
18                             System.out.println(n+"is not prime no")
19                             flag=1;
20                             break;
21                         }
22                 }
23             if(flag==0)
24                 System.out.println(n+"is prime no");
25         }
26
```

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May21 LB Notes.txt P7.java new 1

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```
7
8
9
10     }
11 }
12
13 //Logic flow:
14 armstrong number:
15 n=153
16 153=(1*1*1)+(5*5*5)+(3*3*3)
17     =1^3+5^3+3^3
18     =1+125+27
19     =153
```

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May21 LB Notes.txt P7.java new 1

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```
1 import java.util.Scanner;
2
3 public class P7
4 {
5     public static void main(String[] args)
6     {
7         int n=153;
8         while()
9
10
11
12     }
13 }
14
15 //Logic flow:
16 armstrong number:
17 n=153
18 153=(1*1*1)+(5*5*5)+(3*3*3)
19     =1^3+5^3+3^3
20     =1+125+27
21     =153
22
23 371
```

23/10=2=>Quo  
23%10=3=>Rem

n%10=3  
n/10=15  
-----  
n=15  
n%10=5  
n/10=1  
-----  
n=1  
n%10=1  
n/10=0

Java source file length : 285 lines : 24 Ln : 8 Col : 15 Pos : 137 Windows (CR LF) UTF-8 INS

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May21 LB Notes.txt P7.java new 1

1 import java.util.Scanner;  
2  
3 public class P7  
4 {  
5 public static void main(String[] args)  
6 {  
7 int n=1531;  
8 int x=n;  
9 int a,c=0;  
10 while(n>0)  
11 {  
12 a=n%10;  
13 n=n/10;  
14 c=c+(a\*a\*a);  
15 }  
16 if(x==c)  
17 System.out.println(x+" Armstrong Number");  
18 else  
19 System.out.println(x+" Not a Armstrong Number");  
20  
21  
22 }  
23 }

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23/10=2=>Quo  
23%10=3=>Rem

n=153 n%10=3  
n= n/10=15  
-----  
n=15  
n%10=5  
n/10=1  
-----  
n=1  
n%10=1  
n/10=0

Java source file

length : 490 lines : 36

Ln : 13 Col : 20 Pos : 197

Windows (CR LF)

UTF-8

INS

CDAC Mumbai:Kiran Waghmare

13

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May21 LB Notes.txt P7.java new 1

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```
1 import java.util.Scanner;
2
3 public class P7
4 {
5     public static void main(String[] args)
6     {
7         int n=1531;
8         int x=n;
9         int a,c=0;
10        while (n>0)
11        {
12            a=n%10;
13            n=n/10;
14            c=c+(a*a*a);
15        }
16
17
18
19
20
21
22
23
```

Handwritten annotations and calculations:

- Boxed text:  $23/10=2 \Rightarrow \text{Quo}$ ,  $23\%10=3 \Rightarrow \text{Rem}$
- Calculation sequence:
  - $n=153$ ,  $n\%10=3$
  - $n=n/10=15$
  - 
  - $n=15$ ,  $n\%10=5$
  - $n=n/10=1$
  - 
  - $n=1$ ,  $n\%10=1$
  - $n=n/10=0$
- Handwritten pink notes:  $c = \uparrow$ ,  $c = \uparrow$



```

1 import java.util.Scanner;
2
3 public class P7
4 {
5     public static void main(String[] args)
6     {
7         int n=1531;
8         int x=n;
9         int a,c=0;
10        while(n>0)
11        {
12            a=n%10;
13            n=n/10;
14            c=c+(a*a*a);
15        }
16    }
17
18
19
20
21
22
23

```

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$23/10=2 \Rightarrow \text{Quo}$   
 $23\%10=3 \Rightarrow \text{Rem}$

$n=153$   
 $n\%10=3$   
 $n=n/10=15$   


---

 $n=15$   
 $n\%10=5$   
 $n=n/10=1$   


---

 $n=1$   
 $n\%10=1$   
 $n=n/10=0$

$c = 1^3 + 5^3 + 3^3$   
 $c = 370$

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May21 LB Notes.txtP8.java new 1

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```
1 import java.util.Scanner;
2
3 public class P8
4 {
5     public static void main(String[] args)
6     {
7         int n=525;
8         int temp=n;
9         int r,sum=0;
10        while (n>0)
11        {
12            r=n%10;
13            sum=sum*10+r;
14            n=n/10;
15        }
16        if (temp==sum)
17            System.out.println("Palindrome");
18        else
19            System.out.println("Not Palindrome");
20
21
22
23
```

5

2

5

52\*10+5

5\*10+2=52

0\*10+5=5

525

52

5

0

r=n%10=>R

sum =sum\*10+r;

n=n/10;

Java source file

length : 469 lines : 36

Ln : 10 Col : 19 Pos : 172

Windows (CR LF)

UTF-8

INS