Decision Making and Branching – if, if...else,nested if...else, if...else if, Switch-Case

Ex.No.:   **Date:**

SameDigit

ProblemStatement:

Writeaprogramtoreadtwointegervaluesandprinttrueifboththenumbersendwith the same digit, otherwise print false.
Example:If698and768aregiven,programshouldprinttrueastheybothendwith8.

SampleInput1
2553

SampleOutput1
false

SampleInput2
2777

SampleOutput2
true

Program:

```c
#include<stdio.h>
int main()
{
    int a,b;
    scanf("%d%d",&a,&b);
    if(a%10==b%10)
      printf("true");
    else
      printf("false");



}
```

	Input	Expected	Got	
✓	25 53	false	false	✓
✓	27 77	true	true	✓

Passed all tests! ✓

Ex.No.:   **Date:**

IntrotoConditionalStatements

ProblemStatement:

Inthischallenge,we'regettingstartedwithconditionalstatements.
Task
Givenaninteger,*n*,perform thefollowingconditionalactions:
- If*n*isodd,printWeird
- If*n*isevenandintheinclusiverangeof**2**to**5**,print***NotWeird***
- If*n*isevenandintheinclusiverangeof**6**to**20**,print***Weird***
- If*n*isevenandgreater than**20**,print***NotWeird***

Completethestubcodeprovidedinyoureditortoprintwhetherornot*n*isweird.

InputFormat
Asinglelinecontainingapositiveinteger,***n***.

Constraints
- $1<n<100$

OutputFormat
PrintWeirdifthenumberisweird;otherwise,printNotWeird.

SampleInput0
3

SampleOutput0
Weird

Program:

```c
#include<stdio.h>
int main()
{
    int n;
    scanf("%d",&n);
    if(n%2!=0)
      printf("Weird");
    else if(n>=2&&n>=5)
      printf("Not Weird");
    else if(n>=6&&n<=20)
      printf("Weird");
    else
      printf("Not Weird");

}
```

	Input	Expected	Got	
✓	3	Weird	Weird	✓
✓	24	Not Weird	Not Weird	✓

Passed all tests! ✓

Ex.No.:   **Date:**

PythagoreanTriples

ProblemStatement:

Three numbers form a Pythagorean triple if the sum of squares of two numbers is equal to the square of the third.

Forexample,3,5and4formaPythagoreantriple,since3*3+4*4=25=5*5

You are given three integers, a, b, and c. They need not be given in increasing order. If they form a Pythagorean triple, then print "yes", otherwise, print "no". Please note that the output message is in small letters.

SampleInput1
3
5
4

SampleOutput1
yes

Program:

```c
#include<stdio.h>
int main()
{
    int a,b,c;
    scanf("%d%d%d",&a,&b,&c);
    if(b*b+c*c==a*a)
      printf("yes");
    else if(a*a+b*b==c*c)
      printf("yes");
    else if(a*a+c*c==b*b)
      printf("yes");
    else
      printf("no");
}
```

	Input	Expected	Got	
✓	3 5 4	yes	yes	✓
✓	5 8 2	no	no	✓

Passed all tests! ✓

Ex.No.:   **Date:**

NameThatShape

ProblemStatement:

Write a program that determines the name of a shape from its number of sides. Read the number of sides from the user and then report the appropriate name as part of a meaningful message. Your program should support shapes with anywhere from 3 up to (and including) 10 sides. If a number of sides outside of this range is entered then your program should display anappropriateerror message.

SampleInput1
3

SampleOutput1
Triangle

SampleInput2
7

SampleOutput2
Heptagon

SampleInput3
11

SampleOutput3
Thenumberofsidesisnotsupported.

Program:

```c
#include<stdio.h>
int main()
{
    int n;
    scanf("%d",&n);
    if(n==3)
        printf("Triangle");
    else if(n==4)
        printf("Square");
    else if(n==5)
        printf("Pentagon");
    else if(n==6)
        printf("Hexagon");
    else if(n==7)
        printf("Heptagon");
    else if(n==8)
        printf("octagon");
    else if(n==9)
        printf("Nonagon");
    else if(n==10)
        printf("Decagon");
    else
    printf("The number of sides is not supported.");
```

	Input	Expected	Got	
✓	3	Triangle	Triangle	✓
✓	7	Heptagon	Heptagon	✓
✓	11	The number of sides is not supported.	The number of sides is not supported.	✓

Passed all tests! ✓

Ex.No.:   **Date:**

ChineseZodiac

ProblemStatement:

TheChinesezodiacassignsanimalstoyearsina12-yearcycle.One12-yearcycleis shown in the table below. The pattern repeats from there, with 2012 being another year of the Dragon, and 1999 being another year of the Hare.

Year	Animal
2000	Dragon
2001	Snake
2002	Horse
2003	Sheep
2004	Monkey
2005	Rooster
2006	Dog
2007	Pig
2008	Rat
2009	Ox
2010	Tiger
2011	Hare

Write a program that reads a year from the user and displays the animal associated with that year. Your program should work correctly for any year greater than or equal to zero, not just the ones listed in the table.

SampleInput1
2004

SampleOutput1
Monkey

SampleInput2
2010

SampleOutput2
Tiger

Program:

```c
#include<stdio.h>
int main()
{
    int year;
    scanf("%d",&year);
    if(year%12==8)
     printf("Dragon");
    else if(year%12==9)
     printf("snake");
    else if(year%12==10)
     printf("Horse");
    else if(year%12==11)
     printf("Sheep");
    else if(year%12==0)
     printf("Monkey");
    else if(year%12==1)
     printf("Rooster");
    else if(year%12==2)
     printf("Dog");
    else if(year%12==3)
     printf("Pig");
    else if(year%12==4)
     printf("Rat");
    else if(year%12==5)
     printf("Ox");
    else if(year%12==6)
     printf("Tiger");
    else
     printf("Hare");

}
```
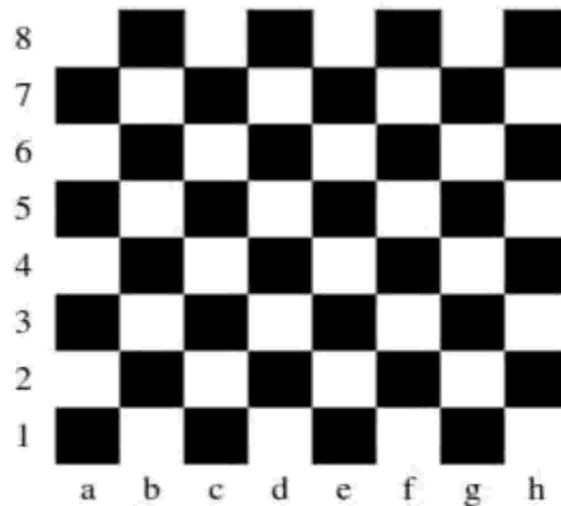
	Input	Expected	Got	
✓	2004	Monkey	Monkey	✓
✓	2010	Tiger	Tiger	✓

Passed all tests! ✓

Ex.No.:   **Date:**

WhatColorIsThatSquare?

ProblemStatement:

Positions on a chess board are identified by a letter and a number. The letter identifies the column, while the number identifies the row, as shown below:

Write aprogram that reads aposition from theuser. Use anif statement to determine if the column begins with a black square or a white square. Then use modular arithmetic to report the color of the square in that row. For example, if the user enters a1 then your program should report that the square is black. If the user enters d5 then your program should report that the square is white. Your program may assume that a valid position will alwaysbeentered.Itdoesnotneedtoperformanyerrorchecking.

SampleInput1
a1

SampleOutput1
Thesquareisblack.

SampleInput2
d5

SampleOutput2
Thesquareiswhite.

Program:

```c
#include<stdio.h>
int main()
{
    int n;char c;int sum;
    scanf("%c%d",&c,&n);
    sum=c+n;
    if (sum%2==0)
    printf("The square is black.");
    else
    printf("The square is white.");
}
```

	Input	Expected	Got	
✓	a 1	The square is black.	The square is black.	✓
✓	d 5	The square is white.	The square is white.	✓

Passed all tests! ✓

Ex.No.:   **Date:**

DayofYear

ProblemStatement:

Some data sets specify dates using the year and day of year rather than the year, month, and day of month. The day of year (DOY) is the sequential day number starting with day 1 on January 1st.

Therearetwocalendars-onefornormalyearswith365days,andoneforleapyearswith 366 days. Leap years are divisible by 4. Centuries, like 1900, are not leap years unless they are divisible by 400. So, 2000 was a leap year.

To find the day of year number for a standard date, scan down the Jan column to find the day of month, then scan across to the appropriate month column and read the day of year number.Reversetheprocess tofindthestandarddatefor agivendayofyear. WriteaprogramtoprinttheDayofYearofagivendate,monthandyear.

SampleInput1
18
6
2020

SampleOutput1
170

Program:

```c
#include<stdio.h>
int main()
{
    int d,y,m,feb;
    scanf("%d%d%d",&d,&m,&y);
    if((y%100==0&&y%400)||y%4==0)
     feb=29;
    else
     feb=28;
    switch(m){
        case 1:
          printf("%d",d);break;
        case 2:
          printf("%d",d+31);break;
        case 3:
          printf("%d",d+31+feb);break;
        case 4:
          printf("%d",d+62+feb);break;
        case 5:
          printf("%d",d+92+feb);break;
        case 6:
          printf("%d",123+d+feb);break;
        case 7:
          printf("%d",153+d+feb);break;
        case 8:
          printf("%d",184+feb+d);break;
        case 9:
          printf("%d",215+d+feb);break;
        case 10:
          printf("%d",245+d+feb);break;
        case 11:
          printf("%d",276+d+feb);break;
        case 12:
          printf("%d",306+feb+d);break;
    }
}
```

	Input	Expected	Got	
✓	18 6 2020	170	170	✓

Passed all tests! ✓

Ex.No.:   **Date:**

Suppandi&Areas

ProblemStatement:

Suppandiistryingtotakepartinthelocalvillagemathquiz.Inthefirstround,heisasked aboutshapesandareas.Suppandi,isconfused,hewasneveranygoodatmath.Andalso, heisbadatrememberingthenamesofshapes.Instead,youwillbehelpinghimcalculate the area of shapes.

- Whenhesaysrectangle,heisactuallyreferringtoasquare.
- Whenhesayssquare,heisactuallyreferringtoatriangle.
- Whenhesaystriangle,heisreferringtoarectangle
- And when he is confused, he just says something random. At this point, all you can do is say 0.

HelpSuppandibyprintingthecorrectanswerinaninteger.

InputFormat
- Nameofshape(alwaysinuppercaseR**-->**Rectangle,S**-->**Square,T**-->**Triangle)
- Lengthof 1side
- Lengthofotherside
  Note:Incaseoftriangle,youcanconsiderthesidesasheightandlengthofbase

OutputFormat
- Printthe areaofthe shape.

SampleInput1
T
10
20

SampleOutput1
200

Program:

```c
#include<stdio.h>
int main()
{
    int a,b;
    char s;
    scanf("%c%d%d",&s,&a,&b);
    switch(s)
    {
        case 'R':
         printf("%d",a*b);break;
        case 'S':
         printf("%.0f",0.5*(a*b));break;
        case 'T':
         printf("%d",a*b);break;
        default :
         printf("0");break;
    }
}
```

	Input	Expected	Got	
✓	T 10 20	200	200	✓
✓	S 30 40	600	600	✓
✓	B 2 11	0	0	✓
✓	R 10 30	300	300	✓
✓	S 40 50	1000	1000	✓

Passed all tests! ✓

Ex.No.:   **Date:**

Superman'sEncounter

ProblemStatement:

Superman is planning a journey to his home planet. It is very important for him to know whichdayhearrivesthere.Theydon'tfollowthe7-dayweeklikeus.Instead,theyfollow a 10-day week with the following days:

Day	NumberNameofDay
1	Sunday
2	Monday
3	Tuesday
4	Wednesday
5	Thursday
6	Friday
7	Saturday
8	Kryptonday
9	Coluday
10	Daxamday

Herearetherulesofthecalendar:
*   ThecalendarstartswithSundayalways.
*   Ithasonly296days.Afterthe296thday,itgoesbacktoSunday.

You begin your journey on a Sunday and will reach after n. You have to tell on which dayyou will arrive when you reach there.

Inputformat:
*   Containanumbern(0<n)

Outputformat:
Printthenameofthedayyouarearrivingon

SampleInput
7

SampleOutput
Kryptonday

SampleInput
1

SampleOutput
Monday

Program:

```c
#include<stdio.h>
int main(){
    int n,day;
    scanf("%d",&n);
    if (n<296)
     day=n;
    else
     day=n-296;
    day%=10;
    day=day+1;
    day%=10;
    switch(day){
        case 1:
         printf("Sunday");break;
        case 2:
         printf("Monday");break;
        case 3:
         printf("Tuesday");break;
        case 4:
         printf("Wednesday");break;
        case 5:
         printf("Thursday");break;
        case 6:
         printf("Friday");break;
        case 7:
          printf("Saturday");break;
        case 8:
          printf("Kryptonday");break;
        case 9:
          printf("Coluday");break;
        case 10:
          printf("Daxamday");break;

    }
}
```

	Input	Expected	Got	
✓	7	Kryptonday	Kryptonday	✓
✓	1	Monday	Monday	✓

Passed all tests! ✓