

People's Democratic Republic of Algeria

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DS & ALGO : CONDITIONAL INSTRUCTIONS
SERIES

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Exercise 1

Code:

```
1 #include<stdio.h>
2
3 int main() {
4     int hours;
5     int cost;
6     scanf("%d", &hours);
7     if(hours <= 0) {
8         printf("Error\n");
9     } else {
10        if(hours <= 5) {
11            cost = hours * 50;
12        } else if (hours <= 10) {
13            cost = 5 * 50 + (hours - 5) * 40;
14        } else {
15            cost = 5 * 50 + 5 * 10 + (hours - 10) * 30;
16        }
17    }
18    printf("The total cost is %d DA\n", cost);
19
20    return 0;
21 }
```

Exercise 2

Code:

```
1 #include<stdio.h>
2
3 int main() {
4     int dep_hours,dep_mins,ari_hours,ari_mins,travel_hours,
5         travel_mins;
6     scanf("Enter the departure time and the arrival time : %d %d %d
7         %d", &dep_hours, &dep_mins, &ari_hours, &ari_mins);
8     if(dep_hours < 0 || dep_hours > 23 || dep_mins < 0 || dep_mins >
9         59 || ari_hours < 0 || ari_hours > 23 || ari_mins < 0 ||
10        ari_mins > 59) {
11        printf("Error\n");
12    } else {
13        if(dep_hours <= ari_hours) {
14            travel_hours = ari_hours - dep_hours;
15            if(dep_mins <= ari_mins) {
16                travel_mins = ari_mins - dep_mins;
17            } else {
18                travel_mins = ari_mins - dep_mins + 60;
19            }
20        } else {
21            travel_hours = ari_hours - dep_hours + 1;
22            travel_mins = ari_mins;
23        }
24    }
25 }
```

```
14         travel_mins = 60 - dep_mins + ari_mins;
15         travel_hours--;
16     }
17 } else {
18     travel_hours = 24 - dep_hours + ari_hours;
19     if(dep_mins <= ari_mins) {
20         travel_mins = ari_mins - dep_mins;
21     } else {
22         travel_mins = 60 - dep_mins + ari_mins;
23         travel_hours--;
24     }
25 }
26 }
27 printf("The total travel time is %d hours and %d minutes\n",
28        travel_hours, travel_mins);
29
30 return 0;
31 }
```

Exercise 3

Code:

```
1 #include<stdio.h>
2
3 int main() {
4     //Version 1
5     int n;
6     printf("Enter an integer : ");
7     scanf("%d", &n);
8     if(n % 2) {
9         printf("The number %d is odd\n", n);
10    } else {
11        printf("The number %d is even\n", n);
12    }
13    //Version 2
14    if (n & 1) {
15        printf("The number %d is odd\n", n);
16    } else {
17        printf("The number %d is even\n", n);
18    }
19    return 0;
20 }
```

Exercise 4

Code:

```
1 #include<stdio.h>
2
3 int main() {
4     float average;
5     printf("Enter the average of the student : ");
6     scanf("%f", &average);
7     if(average < 0 || average > 20) {
8         printf("Error");
9     } else {
10        if(average <= 9.99) {
11            printf("Echec\n");
12        } else if(average <= 13) {
13            printf("Passable\n");
14        } else if(average <= 15.99) {
15            printf("Bien\n");
16        } else if(average <= 19) {
17            printf("Tres Bien\n");
18        } else {
19            printf("Excellent\n");
20        }
21    }
22 }
```

Exercise 5

Code:

```
1 #include<stdio.h>
2
3 int main() {
4     int n;
5     printf("Enter an integer between 100 and 999 : ");
6     if(n < 100 || n > 999) {
7         printf("Error \n");
8     } else {
9         int first_digit = n / 100;
10        int last_digit = n % 10;
11        if(first_digit == last_digit) {
12            printf("The number is palindrome \n");
13        } else {
14            printf("The number is not palindrome \n");
15        }
16    }
```

```
17     return 0;
18 }
```

Exercise 6

Code:

```
1  #include<stdio.h>
2
3  int main() {
4      int a,b,c,first,second,third;
5      printf("Enter three integers : ");
6      scanf("%d %d %d", &a, &b, &c);
7
8      if(a >= b) {
9          first = a;
10         if(b >= c) {
11             second = b;
12             third = c;
13         } else {
14             second = c;
15             third = b;
16         }
17     } else {
18         if(a >= c) {
19             second = a;
20             first = b;
21             third = c;
22         } else {
23             second = c;
24             first = b;
25             third = a;
26         }
27     }
28     printf("The integers in ascending order are : %d %d %d\n", third
29           , second, first);
30
31     return 0;
32 }
```

Exercise 7

Code:

```
1 #include<stdio.h>
2
3 int main() {
4     float a,b,res;
5     char op;
6     printf("Enter an operation: ");
7     scanf("%f %c %f", &a, &op, &b);
8
9     if(op == '/' && b == 0) {
10         printf("Division by zero is not allowed\n");
11     } else {
12         if(op == '+') { res = a+b; printf("Result: %f\n", res);}
13         else if (op == '-') {res = a-b; printf("Result: %f\n", res)
14             ;}
15         else if (op == '*') {res = a*b; printf("Result: %f\n", res)
16             ;}
17         else if (op == '/') {res = a/b; printf("Result: %f\n", res)
18             ;}
19         else printf("Invalid operation\n");
20     }
21
22     return 0;
23 }
```