People's Democratic Republic of Algeria

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DS & ALGO : CONDITIONAL INSTRUCTIONS SERIES

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Exercise 1

Code:

```c
#include<stdio.h>

int main() {
    int hours;
    int cost;
    scanf("%d", &hours);
    if(hours <= 0) {
        printf("Error\n");
    } else {
        if(hours <= 5) {
            cost = hours * 50;
        } else if (hours <= 10) {
            cost = 5 * 50 + (hours - 5) * 40;
        } else {
            cost = 5 * 50 + 5 * 10 + (hours - 10) * 30;
        }
    }
    printf("The total cost is %d DA\n", cost);

    return 0;
}
```

Exercise 2

Code:

```c
#include<stdio.h>

int main() {
    int dep_hours,dep_mins,ari_hours,ari_mins,travel_hours,
       travel_mins;
    scanf("Enter the departure time and the arrival time : %d %d %d
       %d", &dep_hours, &dep_mins, &ari_hours, &ari_mins);
    if(dep_hours < 0 || dep_hours > 23 || dep_mins < 0 || dep_mins >
        59 || ari_hours < 0 || ari_hours > 23 || ari_mins < 0 ||
       ari_mins > 59) {
        printf("Error\n");
    } else {
        if(dep_hours <= ari_hours) {
            travel_hours = ari_hours - dep_hours;
            if(dep_mins <= ari_mins) {
                travel_mins = ari_mins - dep_mins;
            } else {
```

```
                travel_mins = 60 - dep_mins + ari_mins;
                travel_hours--;
            }
        } else {
            travel_hours = 24 - dep_hours + ari_hours;
            if(dep_mins <= ari_mins) {
                travel_mins = ari_mins - dep_mins;
            } else {
                travel_mins = 60 - dep_mins + ari_mins;
                travel_hours--;
            }
        }
    }
    printf("The total travel time is %d hours and %d minutes\n",
       travel_hours, travel_mins);

    return 0;
}
```

Exercise 3

Code:

```
#include<stdio.h>

int main() {
    //Version 1
    int n;
    printf("Enter an integer : ");
    scanf("%d", &n);
    if(n % 2) {
        printf("The number %d is odd\n", n);
    } else {
        printf("The number %d is even\n", n);
    }
    //Version 2
    if (n & 1) {
        printf("The number %d is odd\n", n);
    } else {
        printf("The number %d is even\n", n);
    }
    return 0;
}
```

Exercise 4

Code:

```c
#include<stdio.h>

int main() {
    float average;
    printf("Enter the average of the student : ");
    scanf("%f", &average);
    if(average < 0 || average > 20) {
        printf("Error");
    } else {
        if(average <= 9.99) {
            printf("Echec\n");
        } else if(average <= 13) {
            printf("Passable\n");
        } else if(average <= 15.99) {
            printf("Bien\n");
        } else if(average <= 19) {
            printf("Tres Bien\n");
        } else {
            printf("Excellent\n");
        }
    }
}
```

Exercise 5

Code:

```c
#include<stdio.h>

int main() {
    int n;
    printf("Enter an integer between 100 and 999 : ");
    if(n < 100 || n > 999) {
        printf("Error \n");
    } else {
        int first_digit = n / 100;
        int last_digit = n % 10;
        if(first_digit == last_digit) {
            printf("The number is palindrome \n");
        } else {
            printf("The number is not palindrome \n");
        }
    }
```

```
    return 0;
}
```

Exercise 6

Code:

```
#include<stdio.h>

int main() {
    int a,b,c,first,second,third;
    printf("Enter three integers : ");
    scanf("%d %d %d", &a, &b, &c);

    if(a >= b) {
        first = a;
        if(b >= c) {
            second = b;
            third = c;
        } else {
            second = c;
            third = b;
        }
    } else {
        if(a >= c) {
            second = a;
            first = b;
            third = c;
        } else {
            second = c;
            first = b;
            third = a;
        }
    }
    printf("The integers in ascending order are : %d %d %d\n", third
        , second, first);

    return 0;
}
```

Exercise 7

Code:

```c
#include<stdio.h>

int main() {
    float a,b,res;
    char op;
    printf("Enter an operation: ");
    scanf("%f %c %f", &a, &op, &b);

    if(op == '/' && b == 0) {
        printf("Division by zero is not allowed\n");
    } else {
        if(op == '+') { res = a+b; printf("Result: %f\n", res);}
        else if (op == '-') {res = a-b; printf("Result: %f\n", res)
            ;}
        else if (op == '*') {res = a*b; printf("Result: %f\n", res)
            ;}
        else if (op == '/') {res = a/b;  printf("Result: %f\n", res)
            ;}
        else printf("Invalid operation\n");

    }
    return 0;
}
```