```
/*################################################################################*/
/*HW09_part1.c                                                                    */
/*_________________________                                                       */
/*Written by Mustafa Akilli on April 26, 2015                                     */
/*                                                                                */
/*Description                                                                     */
/*___________                                                                     */
/*  Guessing An Integer Number                                                    */
/*Inputs:                                                                         */
/*  -Guess number                                                                 */
/*Outputs:                                                                        */
/*                                                                                */
/*################################################################################*/
/*                                                                                */
/*--------------------------------------------------------------------------------*/
/*                           Includes                                             */
#include <stdio.h>
/*--------------------------------------------------------------------------------*/
/*                            Structure                                           */
typedef struct{

    char name[30];
    char surname[30];
    char department[30];
    char first_class[30];
    char second_class[30];
    double salary;

}type_I;

typedef struct{

    char name[30];
    char surname[30];
    double salary;
    char degree;

}type_E;

typedef union{

    type_I Instructor;
    type_E Employee;

}type_union;

typedef struct{

    char mission_type[30];
    type_union mission;

}combine_type;
/*--------------------------------------------------------------------------------*/
/*                            Functions                                           */
combine_type salary_rise(combine_type person_info);
void update_and_binary(const char *input_file, const char *output_file);
/*--------------------------------------------------------------------------------*/

int
main (void)
{

    /*  Call the update_and_binary function */
    update_and_binary("input_file.txt","output.bin");

    return 0;
}


/*  Function that Calculate annual salary increase of a person in the university*/
combine_type salary_rise(combine_type person_info)
{
```

```
    /*  İf person is Instructor */
    if(person_info.mission_type[0]=='I')
    {

        person_info.mission.Instructor.salary+=
            (person_info.mission.Instructor.salary*5.0)/100.0;

        person_info.mission.Instructor.salary+=
            (person_info.mission.Instructor.salary*5.3)/100.0;

    }

    /*  İf person is Employee */
    else
    {
        /*  İf degree of Employee is a */
        if(person_info.mission.Employee.degree=='a')
        {
            person_info.mission.Employee.salary+=
                (person_info.mission.Employee.salary*17.5)/100.0;

        }

        /*  İf degree of Employee is b */
        else if(person_info.mission.Employee.degree=='b')
        {
            person_info.mission.Employee.salary+=
                (person_info.mission.Employee.salary*12.0)/100.0;

        }

        /*  İf degree of Employee is c */
        else if(person_info.mission.Employee.degree=='c')
        {
            person_info.mission.Employee.salary+=
                (person_info.mission.Employee.salary*9.0)/100.0;

        }

        /*  İf degree of Employee is false */
        else
        {
            printf("Degree of Employee is not true.\n");
        }

    }


    return person_info;
}

/*  Function that takes person information from an input file update the salary
information (calculate annual salary increase) and write into a binary file.    */
void update_and_binary(const char *input_file, const char *output_file)
{
    FILE *inp,*outp;
    char char_comma[1000];
    char space;
    char status;
    combine_type person[1000];
    int i=0,k=0,j=0;

    inp=fopen(input_file,"r");
    outp=fopen(output_file,"wb");

    do
    {
        status=fscanf(inp,"%c",&person[i].mission_type[j]);

        if(status!=EOF)
        {
```

```
        /*  İf person is Instructor */
        if(person[i].mission_type[j]=='I')
        {

            /*  Take mission_type */
            while(k!=-1)
            {
                ++j;
                fscanf(inp,"%c",&char_comma[j]);
                if(char_comma[j]!=',')
                {
                    person[i].mission_type[j]=char_comma[j];
                }

                else
                {
                    k=-1;
                    j=0;
                }
            }

            k=0;
            fscanf(inp,"%c",&space);

            /*  Take name */
            while(k!=-1)
            {

                fscanf(inp,"%c",&char_comma[j]);
                if(char_comma[j]!=' ')
                {
                    person[i].mission.Instructor.name[j]=char_comma[j];
                    ++j;
                }

                else
                {
                    k=-1;
                    j=0;
                }
            }

            k=0;

            /*  Take surname */
            while(k!=-1)
            {

                fscanf(inp," %c",&char_comma[j]);
                if(char_comma[j]!=',')
                {
                    person[i].mission.Instructor.surname[j]=char_comma[j];
                    ++j;
                }

                else
                {
                    k=-1;
                    j=0;
                }
            }

            k=0;
            fscanf(inp,"%c",&space);

            /*  Take department */
            while(k!=-1)
            {

                fscanf(inp,"%c",&char_comma[j]);
                if(char_comma[j]!=',')
                {
```

```
                person[i].mission.Instructor.department[j]=char_comma[j];
                ++j;
            }

            else
            {
                k=-1;
                j=0;
            }
        }

        k=0;
        fscanf(inp,"%c",&space);

        /*  Take First Class */
        while(k!=-1)
        {

            fscanf(inp,"%c",&char_comma[j]);
            if(char_comma[j]!=',')
            {
              person[i].mission.Instructor.first_class[j]=char_comma[j];
              ++j;

            }

            else
            {
                k=-1;
                j=0;
            }
        }

        k=0;
        fscanf(inp,"%c",&space);

        /*  Take Second Class */
        while(k!=-1)
        {

            fscanf(inp,"%c",&char_comma[j]);
            if(char_comma[j]!=',')
            {
             person[i].mission.Instructor.second_class[j]=char_comma[j];
             ++j;
            }

            else
            {
                k=-1;
                j=0;
            }
        }

        /*  Take Sallary */
        fscanf(inp,"%lf",&person[i].mission.Instructor.salary);
        fscanf(inp,"%c",&space);
        k=0;

        /*  Call the salary_rise function */
        person[i]=salary_rise(person[i]);

        /*  Write into a binary file */
        fwrite(&person[i],sizeof(combine_type),1,outp);

    }

    /*  İf person is Employee */
    else
    {

        /*  Take mission_type */
```

```
while(k!=-1)
{
    ++j;
    fscanf(inp,"%c",&char_comma[j]);
    if(char_comma[j]!=',')
    {
        person[i].mission_type[j]=char_comma[j];
    }

    else
    {
        k=-1;
        j=0;
    }
}

k=0;
fscanf(inp,"%c",&space);

/*  Take name */
while(k!=-1)
{

    fscanf(inp,"%c",&char_comma[j]);
    if(char_comma[j]!=' ')
    {
        person[i].mission.Employee.name[j]=char_comma[j];
        ++j;
    }

    else
    {
        k=-1;
        j=0;
    }
}

k=0;

/*  Take surname */
while(k!=-1)
{

    fscanf(inp," %c",&char_comma[j]);
    if(char_comma[j]!=',')
    {
        person[i].mission.Employee.surname[j]=char_comma[j];
        ++j;
    }

    else
    {
        k=-1;
        j=0;
    }
}

/*  Take salary */
fscanf(inp,"%lf",&person[i].mission.Employee.salary);

fscanf(inp,"%c",&space);
fscanf(inp,"%c",&space);
k=0;

/*  Take degree */
fscanf(inp,"%c",&person[i].mission.Employee.degree);

fscanf(inp,"%c",&space);

/*  Call the salary_rise function */
person[i]=salary_rise(person[i]);
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```
                /*  Write into a binary file */
                fwrite(&person[i],sizeof(combine_type),1,outp);
            }

        }
        ++i;

    }while(status!=EOF);


    fclose(inp);
    fclose(outp);
}
/*##############################################################################*/
/*                            End of HW09_part1.c                               */
/*##############################################################################*/
```