BBM 203 ASSIGNMENT 3 REPORT

Aim : With using linked-list data structure establish a genetic algorithm Project

Linked list implementation

```
typedef struct Gene{
    int id;
    int value;
    int power;
    struct Gene *next;
}Gene;

typedef struct Chromosome{
    int id;
    Gene *head_gene;
    int fitness;
    struct Chromosome *next;
}Chromosome;
```

Adding node at the end of linked list

```
void add_chromosome(Gene ** gene , int fitness,Chromosome ** root) {
    if ((*root) == NULL){
        (*root) = (Chromosome*)malloc(sizeof(Chromosome));
        (*root)->next=NULL;
        (*root)->fitness = fitness;
        (*root)->head_gene = *gene;
    } else{
        Chromosome (*temp) = (*root);
        while ((temp)->next != NULL){
            temp = temp->next;
        }
        temp->next = (Chromosome*)malloc(sizeof(Chromosome));
        temp->next->fitness = fitness;
        temp->next->head_gene = *gene;
    }
}   // adds chromosomes at the end
```

Functions I implemented

- Print functions,
- Swapping,
- Sorting,
- Adding at the end of node,
- Fitness calculator,
- Selection,
- Mutate,
- Cross-over