

```
public class Participant
{
    // Les informations nécessaires

    private String firstname;
    private String name;
    private int birthYear;

    public Participant(String pFirstname, String pName, int pBirthYear)
    {
        firstname = pFirstname;
        name      = pName;
        birthYear = pBirthYear;
    }

    public String getFirstname()
    {
        return firstname;
    }

    public String getName()
    {
        return name;
    }

    public int getBirthYear()
    {
        return birthYear;
    }

    public String toString()
    {
        return firstname + " " + name + " (" + birthYear + ")";
    }
}
```

```
public class Participants
{
    // PARTIE 1: les algorithmes retournent toujours null

    // Liste des participants au cours
    private ArrayList<Participant> alParticipants = new ArrayList<>();

    public void add(Participant pParticipant)
    {
        alParticipants.add(pParticipant);
    }

    public void remove(int i)
    {
        alParticipants.remove(i);
    }

    public int size()
    {
        return alParticipants.size();
    }

    public Participant get(int pPosition)
    {
        return alParticipants.get(pPosition);
    }

    public Participant getEldest()
    {
        return null;
    }

    public Participant getYoungest()
    {
        return null;
    }

    public Object[] toArray()
    {
        return alParticipants.toArray();
    }
}
```

```

public class MainFrame extends javax.swing.JFrame
{
    // PARTIE 1: les algorithmes retournent toujours null

    private Participants participants = new Participants();

    public MainFrame()
    {
        initComponents();
        updateView();
    }

    private void updateView()
    {
        participantsList.setListData(participants.toArray());

        // afficher un "-" si "eldest" ou "youngest" n'existe pas
        Participant eldest = participants.getEldest();
        if (eldest == null)
            eldestLabel.setText("-");
        else
            eldestLabel.setText(eldest.toString());

        Participant youngest = participants.getYoungest();
        if (youngest == null)
            youngestLabel.setText("-");
        else
            youngestLabel.setText(youngest.toString());
    }
// Skipped: ... initComponents { ... }
    private void addButtonActionPerformed(java.awt.event.ActionEvent evt) {GEN-FIRST:event_addButtonActionPerformed
        String firstname = firstnameTextField.getText();
        String name = nameTextField.getText();
        int age = Integer.valueOf(ageTextField.getText());

        Participant p = new Participant(firstname, name, age);
        participants.add(p);

        // Efface tous les champs
        nameTextField.setText("");
        firstnameTextField.setText("");
        ageTextField.setText("");

        // Améliorations: remet le curseur dans le champ 'prénom'
        firstnameTextField.requestFocus();

        updateView();
    }//GEN-LAST:event_addButtonActionPerformed

    private void removeButtonActionPerformed(java.awt.event.ActionEvent evt) {GEN-FIRST:event_removeButtonActionPerformed
        // Vérifier s'il y a bien qqchose de sélectionné
        int index = participantsList.getSelectedIndex();
        if (index >= 0)
            participants.remove(index);
        updateView();
    }//GEN-LAST:event_removeButtonActionPerformed
// Skipped: ... Look & Feel
    // Variables declaration - do not modify//GEN-BEGIN:variables
    private javax.swing.JButton addButton;
    private javax.swing.JTextField ageTextField;
    private javax.swing.JLabel eldestLabel;
    private javax.swing.JTextField firstnameTextField;
    private javax.swing.JLabel jLabel1;
    private javax.swing.JLabel jLabel2;
    private javax.swing.JLabel jLabel3;
    private javax.swing.JLabel jLabel4;
    private javax.swing.JLabel jLabel5;
    private javax.swing.JLabel jLabel6;
    private javax.swing.JScrollPane jScrollPane1;
    private javax.swing.JTextField nameTextField;
    private javax.swing.JList participantsList;
    private javax.swing.JButton removeButton;
    private javax.swing.JLabel youngestLabel;
    // End of variables declaration//GEN-END:variables
}

```

```
public class TestParticipants
{
    /**
     * Programme principal.
     */
    public static void main(String[] args)
    {
        Participant josy = new Participant("Josy", "Muller", 1980);
        Participant poli = new Participant("Poli", "Klein", 1985);
        Participant mary = new Participant("Mary", "Nemo", 1978);
        Participants participants = new Participants();
        participants.add(josy);
        participants.add(poli);
        participants.add(mary);

        for (int i = 0; i < participants.size(); i++)
            System.out.println(participants.get(i));

        System.out.println("-----");

        participants.remove(0);

        for (int i = 0; i < participants.size(); i++)
            System.out.println(participants.get(i));

        System.out.println("Eldest: " + participants.getEldest());
        System.out.println("Youngest: " + participants.getYoungest());
    }
}
```