**Project Development Phase**

**Model Performance Test**

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| Date | 10 November 2022 |
| Team ID | PNT2022TMID00519 |
| Project Name | Project – Deep Learning Fundus Image Analysis  for Early Detection of Diabetic Retinopathy |
| Maximum Marks | 10 Marks |

**Model Performance Testing:**

Project team shall fill the following information in model performance testing template.

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| --- | --- | --- | --- |
| **S.No.** | **Parameter** | **Values** | **Screenshot** |
|  | Model Summary | **Model: "Resnet18"**  **\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_**  **Layer (type) Output Shape Param # Connected to**  **=================================================================================**  **input\_1 (InputLayer) [(None, 256, 256, 3 0 []**  **)]**    **zero\_padding2d (ZeroPadding2D) (None, 262, 262, 3) 0 ['input\_1[0][0]']**    **conv1 (Conv2D) (None, 128, 128, 64 9472 ['zero\_padding2d[0][0]']**  **)**    **bn\_conv1 (BatchNormalization) (None, 128, 128, 64 256 ['conv1[0][0]']**  **)**    **activation (Activation) (None, 128, 128, 64 0 ['bn\_conv1[0][0]']**  **)**    **max\_pooling2d (MaxPooling2D) (None, 63, 63, 64) 0 ['activation[0][0]']**    **res\_2\_conv\_a (Conv2D) (None, 63, 63, 64) 4160 ['max\_pooling2d[0][0]']**    **max\_pooling2d\_1 (MaxPooling2D) (None, 31, 31, 64) 0 ['res\_2\_conv\_a[0][0]']**    **bn\_2\_conv\_a (BatchNormalizatio (None, 31, 31, 64) 256 ['max\_pooling2d\_1[0][0]']**  **n)**    **activation\_1 (Activation) (None, 31, 31, 64) 0 ['bn\_2\_conv\_a[0][0]']**    **res\_2\_conv\_b (Conv2D) (None, 31, 31, 64) 36928 ['activation\_1[0][0]']**    **bn\_2\_conv\_b (BatchNormalizatio (None, 31, 31, 64) 256 ['res\_2\_conv\_b[0][0]']**  **n)**    **activation\_2 (Activation) (None, 31, 31, 64) 0 ['bn\_2\_conv\_b[0][0]']**    **res\_2\_conv\_copy (Conv2D) (None, 63, 63, 256) 16640 ['max\_pooling2d[0][0]']**    **res\_2\_conv\_c (Conv2D) (None, 31, 31, 256) 16640 ['activation\_2[0][0]']**    **max\_pooling2d\_2 (MaxPooling2D) (None, 31, 31, 256) 0 ['res\_2\_conv\_copy[0][0]']**    **bn\_2\_conv\_c (BatchNormalizatio (None, 31, 31, 256) 1024 ['res\_2\_conv\_c[0][0]']**  **n)**    **bn\_2\_conv\_copy (BatchNormaliza (None, 31, 31, 256) 1024 ['max\_pooling2d\_2[0][0]']**  **tion)**    **add (Add) (None, 31, 31, 256) 0 ['bn\_2\_conv\_c[0][0]',**  **'bn\_2\_conv\_copy[0][0]']**    **activation\_3 (Activation) (None, 31, 31, 256) 0 ['add[0][0]']**    **res\_2\_identity\_1\_a (Conv2D) (None, 31, 31, 64) 16448 ['activation\_3[0][0]']**    **bn\_2\_identity\_1\_a (BatchNormal (None, 31, 31, 64) 256 ['res\_2\_identity\_1\_a[0][0]']**  **ization)**    **activation\_4 (Activation) (None, 31, 31, 64) 0 ['bn\_2\_identity\_1\_a[0][0]']**    **res\_2\_identity\_1\_b (Conv2D) (None, 31, 31, 64) 36928 ['activation\_4[0][0]']**    **bn\_2\_identity\_1\_b (BatchNormal (None, 31, 31, 64) 256 ['res\_2\_identity\_1\_b[0][0]']**  **ization)**    **activation\_5 (Activation) (None, 31, 31, 64) 0 ['bn\_2\_identity\_1\_b[0][0]']**    **res\_2\_identity\_1\_c (Conv2D) (None, 31, 31, 256) 16640 ['activation\_5[0][0]']**    **bn\_2\_identity\_1\_c (BatchNormal (None, 31, 31, 256) 1024 ['res\_2\_identity\_1\_c[0][0]']**  **ization)**    **add\_1 (Add) (None, 31, 31, 256) 0 ['bn\_2\_identity\_1\_c[0][0]',**  **'activation\_3[0][0]']**    **activation\_6 (Activation) (None, 31, 31, 256) 0 ['add\_1[0][0]']**    **res\_2\_identity\_2\_a (Conv2D) (None, 31, 31, 64) 16448 ['activation\_6[0][0]']**    **bn\_2\_identity\_2\_a (BatchNormal (None, 31, 31, 64) 256 ['res\_2\_identity\_2\_a[0][0]']**  **ization)**    **activation\_7 (Activation) (None, 31, 31, 64) 0 ['bn\_2\_identity\_2\_a[0][0]']**    **res\_2\_identity\_2\_b (Conv2D) (None, 31, 31, 64) 36928 ['activation\_7[0][0]']**    **bn\_2\_identity\_2\_b (BatchNormal (None, 31, 31, 64) 256 ['res\_2\_identity\_2\_b[0][0]']**  **ization)**    **activation\_8 (Activation) (None, 31, 31, 64) 0 ['bn\_2\_identity\_2\_b[0][0]']**    **res\_2\_identity\_2\_c (Conv2D) (None, 31, 31, 256) 16640 ['activation\_8[0][0]']**    **bn\_2\_identity\_2\_c (BatchNormal (None, 31, 31, 256) 1024 ['res\_2\_identity\_2\_c[0][0]']**  **ization)**    **add\_2 (Add) (None, 31, 31, 256) 0 ['bn\_2\_identity\_2\_c[0][0]',**  **'activation\_6[0][0]']**    **activation\_9 (Activation) (None, 31, 31, 256) 0 ['add\_2[0][0]']**    **res\_3\_conv\_a (Conv2D) (None, 31, 31, 128) 32896 ['activation\_9[0][0]']**    **max\_pooling2d\_3 (MaxPooling2D) (None, 15, 15, 128) 0 ['res\_3\_conv\_a[0][0]']**    **bn\_3\_conv\_a (BatchNormalizatio (None, 15, 15, 128) 512 ['max\_pooling2d\_3[0][0]']**  **n)**    **activation\_10 (Activation) (None, 15, 15, 128) 0 ['bn\_3\_conv\_a[0][0]']**    **res\_3\_conv\_b (Conv2D) (None, 15, 15, 128) 147584 ['activation\_10[0][0]']**    **bn\_3\_conv\_b (BatchNormalizatio (None, 15, 15, 128) 512 ['res\_3\_conv\_b[0][0]']**  **n)**    **activation\_11 (Activation) (None, 15, 15, 128) 0 ['bn\_3\_conv\_b[0][0]']**    **res\_3\_conv\_copy (Conv2D) (None, 31, 31, 512) 131584 ['activation\_9[0][0]']**    **res\_3\_conv\_c (Conv2D) (None, 15, 15, 512) 66048 ['activation\_11[0][0]']**    **max\_pooling2d\_4 (MaxPooling2D) (None, 15, 15, 512) 0 ['res\_3\_conv\_copy[0][0]']**    **bn\_3\_conv\_c (BatchNormalizatio (None, 15, 15, 512) 2048 ['res\_3\_conv\_c[0][0]']**  **n)**    **bn\_3\_conv\_copy (BatchNormaliza (None, 15, 15, 512) 2048 ['max\_pooling2d\_4[0][0]']**  **tion)**    **add\_3 (Add) (None, 15, 15, 512) 0 ['bn\_3\_conv\_c[0][0]',**  **'bn\_3\_conv\_copy[0][0]']**    **activation\_12 (Activation) (None, 15, 15, 512) 0 ['add\_3[0][0]']**    **res\_3\_identity\_1\_a (Conv2D) (None, 15, 15, 128) 65664 ['activation\_12[0][0]']**    **bn\_3\_identity\_1\_a (BatchNormal (None, 15, 15, 128) 512 ['res\_3\_identity\_1\_a[0][0]']**  **ization)**    **activation\_13 (Activation) (None, 15, 15, 128) 0 ['bn\_3\_identity\_1\_a[0][0]']**    **res\_3\_identity\_1\_b (Conv2D) (None, 15, 15, 128) 147584 ['activation\_13[0][0]']**    **bn\_3\_identity\_1\_b (BatchNormal (None, 15, 15, 128) 512 ['res\_3\_identity\_1\_b[0][0]']**  **ization)**    **activation\_14 (Activation) (None, 15, 15, 128) 0 ['bn\_3\_identity\_1\_b[0][0]']**    **res\_3\_identity\_1\_c (Conv2D) (None, 15, 15, 512) 66048 ['activation\_14[0][0]']**    **bn\_3\_identity\_1\_c (BatchNormal (None, 15, 15, 512) 2048 ['res\_3\_identity\_1\_c[0][0]']**  **ization)**    **add\_4 (Add) (None, 15, 15, 512) 0 ['bn\_3\_identity\_1\_c[0][0]',**  **'activation\_12[0][0]']**    **activation\_15 (Activation) (None, 15, 15, 512) 0 ['add\_4[0][0]']**    **res\_3\_identity\_2\_a (Conv2D) (None, 15, 15, 128) 65664 ['activation\_15[0][0]']**    **bn\_3\_identity\_2\_a (BatchNormal (None, 15, 15, 128) 512 ['res\_3\_identity\_2\_a[0][0]']**  **ization)**    **activation\_16 (Activation) (None, 15, 15, 128) 0 ['bn\_3\_identity\_2\_a[0][0]']**    **res\_3\_identity\_2\_b (Conv2D) (None, 15, 15, 128) 147584 ['activation\_16[0][0]']**    **bn\_3\_identity\_2\_b (BatchNormal (None, 15, 15, 128) 512 ['res\_3\_identity\_2\_b[0][0]']**  **ization)**    **activation\_17 (Activation) (None, 15, 15, 128) 0 ['bn\_3\_identity\_2\_b[0][0]']**    **res\_3\_identity\_2\_c (Conv2D) (None, 15, 15, 512) 66048 ['activation\_17[0][0]']**    **bn\_3\_identity\_2\_c (BatchNormal (None, 15, 15, 512) 2048 ['res\_3\_identity\_2\_c[0][0]']**  **ization)**    **add\_5 (Add) (None, 15, 15, 512) 0 ['bn\_3\_identity\_2\_c[0][0]',**  **'activation\_15[0][0]']**    **activation\_18 (Activation) (None, 15, 15, 512) 0 ['add\_5[0][0]']**    **res\_4\_conv\_a (Conv2D) (None, 15, 15, 256) 131328 ['activation\_18[0][0]']**    **max\_pooling2d\_5 (MaxPooling2D) (None, 7, 7, 256) 0 ['res\_4\_conv\_a[0][0]']**    **bn\_4\_conv\_a (BatchNormalizatio (None, 7, 7, 256) 1024 ['max\_pooling2d\_5[0][0]']**  **n)**    **activation\_19 (Activation) (None, 7, 7, 256) 0 ['bn\_4\_conv\_a[0][0]']**    **res\_4\_conv\_b (Conv2D) (None, 7, 7, 256) 590080 ['activation\_19[0][0]']**    **bn\_4\_conv\_b (BatchNormalizatio (None, 7, 7, 256) 1024 ['res\_4\_conv\_b[0][0]']**  **n)**    **activation\_20 (Activation) (None, 7, 7, 256) 0 ['bn\_4\_conv\_b[0][0]']**    **res\_4\_conv\_copy (Conv2D) (None, 15, 15, 1024 525312 ['activation\_18[0][0]']**  **)**    **res\_4\_conv\_c (Conv2D) (None, 7, 7, 1024) 263168 ['activation\_20[0][0]']**    **max\_pooling2d\_6 (MaxPooling2D) (None, 7, 7, 1024) 0 ['res\_4\_conv\_copy[0][0]']**    **bn\_4\_conv\_c (BatchNormalizatio (None, 7, 7, 1024) 4096 ['res\_4\_conv\_c[0][0]']**  **n)**    **bn\_4\_conv\_copy (BatchNormaliza (None, 7, 7, 1024) 4096 ['max\_pooling2d\_6[0][0]']**  **tion)**    **add\_6 (Add) (None, 7, 7, 1024) 0 ['bn\_4\_conv\_c[0][0]',**  **'bn\_4\_conv\_copy[0][0]']**    **activation\_21 (Activation) (None, 7, 7, 1024) 0 ['add\_6[0][0]']**    **res\_4\_identity\_1\_a (Conv2D) (None, 7, 7, 256) 262400 ['activation\_21[0][0]']**    **bn\_4\_identity\_1\_a (BatchNormal (None, 7, 7, 256) 1024 ['res\_4\_identity\_1\_a[0][0]']**  **ization)**    **activation\_22 (Activation) (None, 7, 7, 256) 0 ['bn\_4\_identity\_1\_a[0][0]']**    **res\_4\_identity\_1\_b (Conv2D) (None, 7, 7, 256) 590080 ['activation\_22[0][0]']**    **bn\_4\_identity\_1\_b (BatchNormal (None, 7, 7, 256) 1024 ['res\_4\_identity\_1\_b[0][0]']**  **ization)**    **activation\_23 (Activation) (None, 7, 7, 256) 0 ['bn\_4\_identity\_1\_b[0][0]']**    **res\_4\_identity\_1\_c (Conv2D) (None, 7, 7, 1024) 263168 ['activation\_23[0][0]']**    **bn\_4\_identity\_1\_c (BatchNormal (None, 7, 7, 1024) 4096 ['res\_4\_identity\_1\_c[0][0]']**  **ization)**    **add\_7 (Add) (None, 7, 7, 1024) 0 ['bn\_4\_identity\_1\_c[0][0]',**  **'activation\_21[0][0]']**    **activation\_24 (Activation) (None, 7, 7, 1024) 0 ['add\_7[0][0]']**    **res\_4\_identity\_2\_a (Conv2D) (None, 7, 7, 256) 262400 ['activation\_24[0][0]']**    **bn\_4\_identity\_2\_a (BatchNormal (None, 7, 7, 256) 1024 ['res\_4\_identity\_2\_a[0][0]']**  **ization)**    **activation\_25 (Activation) (None, 7, 7, 256) 0 ['bn\_4\_identity\_2\_a[0][0]']**    **res\_4\_identity\_2\_b (Conv2D) (None, 7, 7, 256) 590080 ['activation\_25[0][0]']**    **bn\_4\_identity\_2\_b (BatchNormal (None, 7, 7, 256) 1024 ['res\_4\_identity\_2\_b[0][0]']**  **ization)**    **activation\_26 (Activation) (None, 7, 7, 256) 0 ['bn\_4\_identity\_2\_b[0][0]']**    **res\_4\_identity\_2\_c (Conv2D) (None, 7, 7, 1024) 263168 ['activation\_26[0][0]']**    **bn\_4\_identity\_2\_c (BatchNormal (None, 7, 7, 1024) 4096 ['res\_4\_identity\_2\_c[0][0]']**  **ization)**    **add\_8 (Add) (None, 7, 7, 1024) 0 ['bn\_4\_identity\_2\_c[0][0]',**  **'activation\_24[0][0]']**    **activation\_27 (Activation) (None, 7, 7, 1024) 0 ['add\_8[0][0]']**    **Averagea\_Pooling (AveragePooli (None, 3, 3, 1024) 0 ['activation\_27[0][0]']**  **ng2D)**    **flatten (Flatten) (None, 9216) 0 ['Averagea\_Pooling[0][0]']**    **Dense\_final (Dense) (None, 5) 46085 ['flatten[0][0]']**    **==================================================================================**  **Total params: 4,987,525**  **Trainable params: 4,967,685**  **Non-trainable params: 19,840**  **\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_** |  |
|  | Accuracy | Training Accuracy – 0.6733  Validation Accuracy -0.8167 |  |
| 3. | Confidence Score (Only Yolo Projects) | Class Detected -   Confidence Score - |  |